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Installing Hardware Options for the Contivity VPN Switch

NORTEL NETWORKS™

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USA requirements only

Federal Communications Commission (FCC) Compliance Notice: Radio Frequency Notice

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy. If it is not installed and used in accordance with the instruction manual, it may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case users will be required to take whatever measures may be necessary to correct the interference at their own expense.

European requirements only

EN 55 022 statement (Class A)

This is to certify that the Nortel Networks Contivity VPN Switch is shielded against the generation of radio interference in accordance with the application of Council Directive 89/336/EEC, Article 4a. Conformity is declared by the application of EN 55 022 Class A (CISPR 22).

Warning: This is a Class A product. In a domestic environment, this product may cause radio interference, in which case, the user may be required to take appropriate measures.

Achtung: Dieses ist ein Gerät der Funkstörgrenzwertklasse A. In Wohnbereichen können bei Betrieb dieses Gerätes Rundfunkstörungen auftreten, in welchen Fällen der Benutzer für entsprechende Gegenmaßnahmen verantwortlich ist.

Attention: Ceci est un produit de Classe A. Dans un environnement domestique, ce produit risque de créer des interférences radioélectriques, il appartiendra alors à l'utilisateur de prendre les mesures spécifiques appropriées.

To maintain compliance with FCC radio frequency emission limits, shielded cables are required to connect equipment to other Class A certified devices and the use of quadshield, RG-6/U type CATV cable is required for connection to the CATV system. Any changes or modifications may void the user's authorization to operate this equipment.

EN 55 022 statement (Class B)

This is to certify that the Nortel Networks Contivity 1600 and 2600 are shielded against the generation of radio interference in accordance with the application of Council Directive 89/336/EEC, Article 4a. Conformity is declared by the application of EN 55 022 Class B (CISPR 22).

Compliance is dependent upon the use of shielded Nortel Networks Contivity 1600 or 2600.

EC Declaration of Conformity

Tthese products conform to the provisions of the R&TTE Directive 1999/5/EC.

Japan/Nippon requirements only

Voluntary Control Council for Interference (VCCI) statement (Class A)

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Voluntary Control Council for Interference (VCCI) statement (Class B Contivity 1600 and 2600)

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Taiwan requirements

Bureau of Standards, Metrology and Inspection (BSMI) statement

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Canada requirements only

Canadian Department of Communications Radio Interference Regulations

This digital apparatus (Contivity VPN Switch) does not exceed the Class A limits for radio-noise emissions from digital apparatus as set out in the Radio Interference Regulations of the Canadian Department of Communications.

Règlement sur le brouillage radioélectrique du ministère des Communications

Cet appareil numérique (Contivity VPN Switch) respecte les limites de bruits radioélectriques visant les appareils numériques de classe A prescrites dans le Règlement sur le brouillage radioélectrique du ministère des Communications du Canada.

Canadian Department of Communications Radio Interference Regulations

This digital apparatus (Contivity 1600 and Contivity 2600) does not exceed the Class B limits for radio-noise emissions from digital apparatus as set out in the Radio Interference Regulations of the Canadian Department of Communications.

Règlement sur le brouillage radioélectrique du ministère des Communications (Classe B)

Cet appareil numérique (Contivity 1600 and Contivity 2600) respecte les limites de bruits radioélectriques visant les appareils numériques de classe B prescrites dans le Règlement sur le brouillage radioélectrique du ministère des Communications du Canada.

Canada CS-03 rules and regulations

Notice: The Industry Canada label identifies certified equipment. This certification means that the equipment meets telecommunications network protective, operational and safety requirements as prescribed in the appropriate Terminal Equipment Technical Requirements document(s). The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with the above conditions may not prevent the degradation of service in some situations.

Repairs to certified equipment should be coordinated by a representative designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

Caution: Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

Notice: For equipment using loopstart lines, please note that the Ringer Equivalence Number (REN) assigned to each terminal device provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the Ringer Equivalence Numbers of all the devices does not exceed 5. The REN is located on the "FCC Rules Part 68" label located on the bracket of the module, or on the back of the unit.

Canada CS-03 -- règles et règlements

Avis: L'étiquette d'Industrie Canada identifie le matériel homologué. Cette étiquette certifie que le matériel est conforme aux normes de protection, d'exploitation et de sécurité des réseaux de télécommunications, comme le prescrivent les documents concernant les exigences techniques relatives au matériel terminal. Le Ministère n'assure toutefois pas que le matériel fonctionnera à la satisfaction de l'utilisateur.

Avant d'installer ce matériel, l'utilisateur doit s'assurer qu'il est permis de le raccorder aux installations de l'entreprise locale de télécommunication. Le matériel doit également être installé en suivant une méthode acceptée de raccordement. L'abonné ne doit pas oublier qu'il est possible que la conformité aux conditions énoncées ci-dessus n'empêche pas la dégradation du service dans certaines situations.

Les réparations de matériel homologué doivent être coordonnées par un représentant désigné par le fournisseur. L'entreprise de télécommunications peut demander à l'utilisateur de débrancher un appareil à la suite de réparations ou de modifications effectuées par l'utilisateur ou à cause de mauvais fonctionnement.

Pour sa propre protection, l'utilisateur doit s'assurer que tous les fils de mise à la terre de la source d'énergie électrique, des lignes téléphoniques et des canalisations d'eau métalliques, s'il y en a, sont raccordés ensemble. Cette précaution est particulièrement importante dans les régions rurales.

Avertissement: L'utilisateur ne doit pas tenter de faire ces raccordements lui-même; il doit avoir recours à un service d'inspection des installations électriques, ou à un électricien, selon le cas.

Avis: Veuillez prendre note que pour tout appareillage supportant des lignes de type “loopstart,” l'indice d'équivalence de la sonnerie (IES) assigné à chaque dispositif terminal indique le nombre maximal de terminaux qui peuvent être raccordés à une interface. La terminaison d'une interface téléphonique peut consister en une combinaison de quelques dispositifs, à la seule condition que la somme d'indices d'équivalence de la sonnerie de tous les dispositifs n'excède pas 5. Le REN figure sur l’étiquette “FCC Rules Part 68” située sur le support du module ou à l’arrière de l’unité.

FCC Part 68 compliance statement

This equipment complies with Part 68 of FCC Rules. All direct connections to telephone network lines must be made using standard plugs and jacks compliant with FCC Part 68. Please note the following:

1. You are required to request service from the telephone company before you connect the unit to a network. When you request service, you must provide the telephone company with the following data:
   - When you request T1 Service, you must provide the telephone company with
     - The Facility Interface Code
       Provide the telephone company with all the codes below:
       - 04DU9-BN (1.544 MB, D4 framing format)
       - 04DU9-DN (1.544 MB, D4 framing format with B8ZF coding)
       - 04DU9-1KN (1.544 MB, ESF framing format)
       - 04DU9-1SN (1.544 MB, ESF framing format with B8ZF coding)
       - 04DU9-1ZN (1.544 MB, ANSI ESF and ZBTSI without line power)

       The telephone company will select the code it has available.
     - The Service Order Code(s) (SOC): 6.0Y
     - The required Universal Service Order Code (USOC) jack: RJ48C
   - When you request ISDN “U” Interface Service, you must provide the telephone company with
     - The Facility Interface Code: 02IS5
     - The Service Order Code(s) (SOC): 6.0F
     - The required Universal Service Order Code (USOC) jack: RJ49C
   - When you request ISDN “S/T” Interface Service, you must provide the telephone company with
     - The Service Order Code(s) (SOC): 6.0P
     - The make, model number, and FCC Registration number of the NT1

     Note: ISDN S/T cannot be directly connected to the network.
   - When you request Primary Rate ISDN Service, you must provide the telephone company with
     - The Facility Interface Code: 04DU9-1SN (1.544 MB, ESF framing format with B8ZF coding)
     - The Service Order Code(s) (SOC): 6.0Y
     - The required Universal Service Order Code (USOC) jack: RJ48C

2. Your telephone company may make changes to its facilities, equipment, operations, or procedures that could affect the proper functioning of your equipment. The telephone company will notify you in advance of such changes to give you an opportunity to maintain uninterrupted telephone service.
3. If the unit causes harm to the telephone network, the telephone company may temporarily discontinue your service. If possible, they will notify you in advance, but if advance notice is not practical, you will be notified as soon as possible and will be informed of your right to file a complaint with the FCC.
4. If you experience trouble with the unit, please contact the Nortel Networks Technical Solutions Center in your area for service or repairs. Repairs should be performed only by service personnel authorized by Nortel Networks.

North America	(800) 4NORTEL or (800) 466-7835
EMEA	(33) (4) 92-966-968
Asia Pacific	(61) (2) 9927-8800
China	(800) 810-5000

5. You are required to notify the telephone company when you disconnect the unit from the network.

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Preface

This document describes how Nortel Networks* trained service personnel can install or replace hardware components for models 4600, 4500, 4000, 2600, 2500, 2000, 1600, and 600 of the Contivity* products. The options include:

- Installing LAN and WAN option cards
- Installing hardware accelerator PCI cards
- Adding or replacing memory
- Replacing a power supply (4600, 4500, and 4000 only)
- Replacing a hard disk drive (4600, 4500, and 4000 only)

To install LAN, WAN, or hardware accelerator PCI cards and for system recovery operations, you must remove the front bezel, the top cover, and/or the rear I/O panel tray, depending on the type of Contivity product you are servicing. The procedures for each Contivity model are described in the following chapters.

Warning: Only Nortel Networks trained service personnel should change existing hardware configurations. *Improper handling of internal components or assemblies, with the power connected, could cause severe injury.*

Warning: Note that some models must be returned to Nortel Networks Manufacturing via your Customer Service Representative for repair. **Do not attempt to make any changes** to these models, because untrained individuals could be harmed, you could invalidate your warranty, or you could possibly cause irreparable damage to the equipment.

This guide refers to the Contivity 4600, 4500, 4000, 2600, 2000, 1600, and 600 as *the switch.* It assumes that you are familiar with Web browsers and their general operation.

Related publications

The following list shows the associated documentation that you will need to configure and manage the switch.

- *Contivity VPN Switch Release Notes* provide the latest information, including known problems, workarounds, and special considerations.
- *Configuring the Contivity VPN Switch* (included on the CD) provides complete detailson how to configure, monitor, and troubleshoot the switch.
- *Getting Started with the Contivity xxxx* or *Installing the Contivity xxxx* (included on the CD) provides complete details to help you set up and get started using your switch.

Text conventions

This guide uses the following text conventions:

angle brackets (< >)	Indicate that you choose the text to enter based on the description inside the brackets. Do not type the brackets when entering the command. Example: If the command syntax is `ping <ip_address>`, you enter `ping 192.32.10.12`
`bold Courier text`	Indicates command names, options, and text that you need to enter. Example: Use the **`dinfo`** command. Example: Enter **`show ip`** {**`alerts`**|**`routes`**}.

braces ({ })	Indicate required elements in syntax descriptions where there is more than one option. You must choose only one of the options. Do not type the braces when entering the command. Example: If the command syntax is `show ip {alerts|routes}`, you must enter either `show ip alerts` or `show ip routes`, but not both.
brackets ([ ])	Indicate optional elements in syntax descriptions. Do not type the brackets when entering the command. Example: If the command syntax is `show ip interface [-alerts]`, you can enter either `show ip interface` or `show ip interface -alerts`.
ellipsis points (. . .)	Indicate that you repeat the last element of the command as needed. Example: If the command syntax is `ethernet/2/1 [<parameter> <value>]...`, you enter `ethernet/2/1` and as many parameter-value pairs as needed.
italic text	Indicates new terms, book titles, and variables in command syntax descriptions. Where a variable is two or more words, the words are connected by an underscore. Example: If the command syntax is `show at <valid_route>`, *`valid_route`* is one variable and you substitute one value for it.
`plain Courier text`	Indicates command syntax and system output, for example, prompts and system messages. Example: `Set Trap Monitor Filters`
separator (->)	Shows menu paths. Example: Protocols > IP identifies the IP option on the Protocols menu.

vertical line (|)	Separates choices for command keywords and arguments. Enter only one of the choices. Do not type the vertical line when entering the command. Example: If the command syntax is `show ip {alerts|routes}`, you enter either `show ip alerts` or `show ip routes`, but not both.
asterisk (*)	Indicates a trademark. See the Title Page for trademark information. Example: Contivity*

Acronyms

This guide uses the following acronyms:

CSU/DSU	Channel Service Unit/ Digital Service Unit
DIMM	Dual inline memory module
DTE	Data Terminal Equipment
ERC	Express Routing Code
FTP	File Transfer Protocol
HSSI	high speed serial interface
HTTP	HyperText Transfer Protocol
IP	Internet Protocol
IPMI	Intelligent Platform Management Interface
LAN	Local area network
LED	Light emitting diode
PCI	Peripheral component interconnect
PDN	Public data network
SCSI	Small computer system interface
SNMP	Simple Network Management Protocol
TCP	Transmission Control Protocol

URL	Uniform Resource Locator
VPN	Virtual private network
WAN	Wide area network

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Technical Solutions Center	Telephone
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Asia Pacific	(61) (2) 9927-8800
China	(800) 810-5000

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Chapter 1
Contivity 4600 Option Installation

This section describes how to install or replace hardware components for the Contivity 4600.

Caution: Wear an antistatic band when handling electronic components for the switch to avoid damaging them.

Warning: Turn off the switch and unplug both power cords before installing LAN and WAN cards or system memory.

Opening the Contivity 4600

To replace power supplies, replace hard disk drives, or access the diskette drive for system recovery operations, you must remove the switch's front bezel.

Note: Removing the front bezel on the Contivity 4600 activates the chassis intrusion alarm on power only. This intrusion is reported to the system log file.

The first few times you remove the front bezel it might seem to resist removal. This is simply because the ball stud and sockets are new. After a few times, removal is easier. Remove the switch front bezel as follows:

1. Insert a flat-head screwdriver into the slots on the lower left and right sides of the chassis, and pry the bezel forward.
2. Slide your fingers between the front bezel and the switch.
3. Pull the bezel forward firmly, separating the ball studs on the bezel from the sockets on the chassis.

Figure 1 shows you how to remove the front bezel from the Contivity 4600. You do not need to turn off the switch to remove the front bezel when installing a power supply or hard disk drive.

Figure 1 Removing the Contivity 4600 front bezel

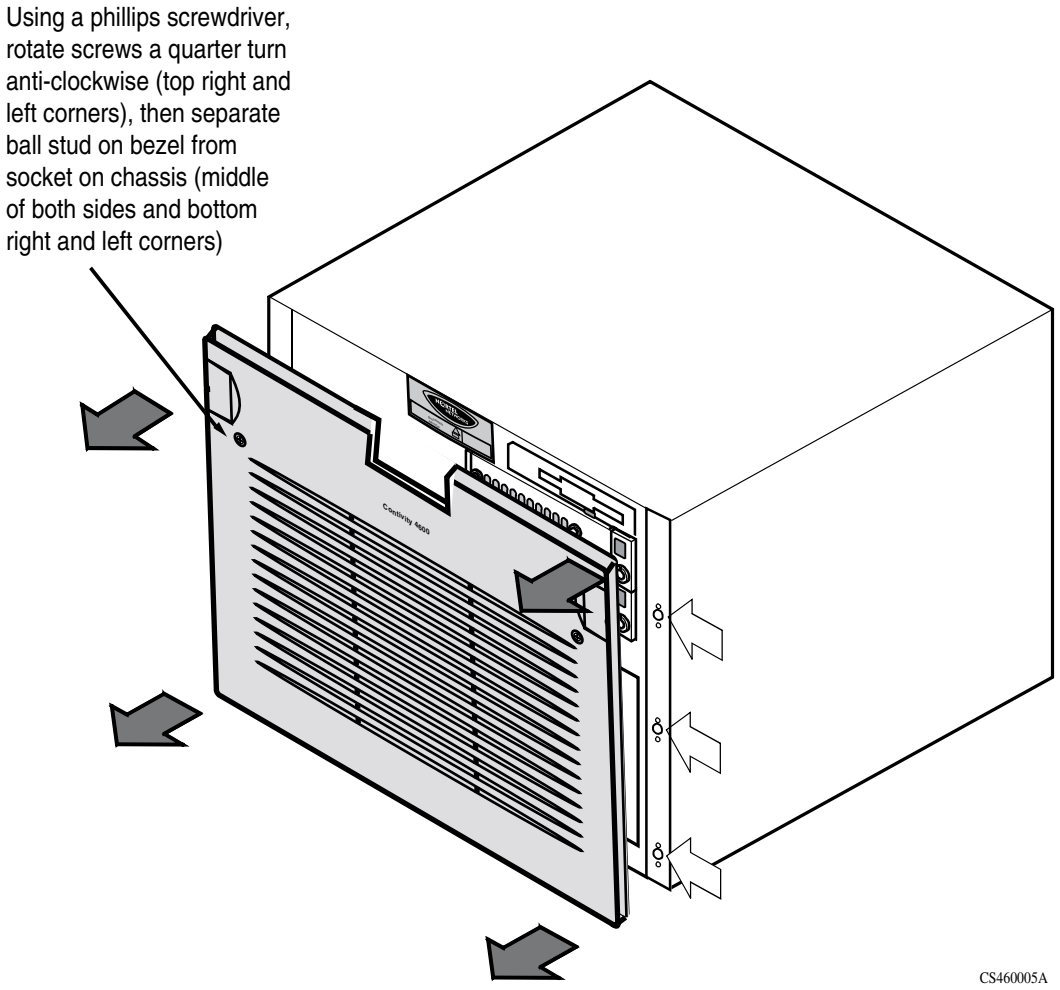
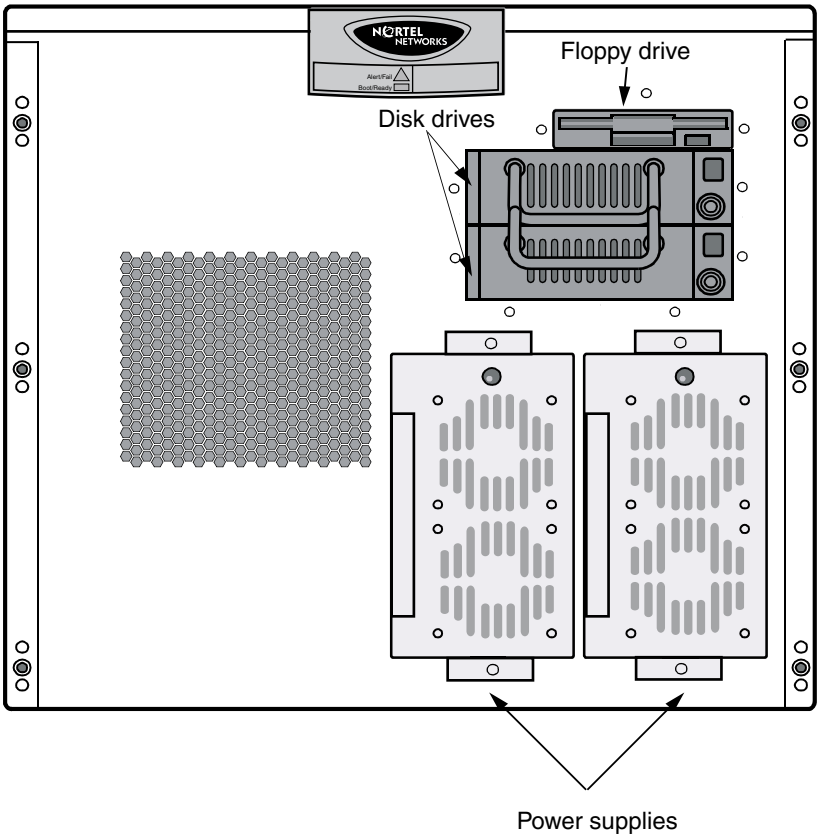


Figure 2 shows the Contivity 4600 front components.

Figure 2 Contivity 4600 front components



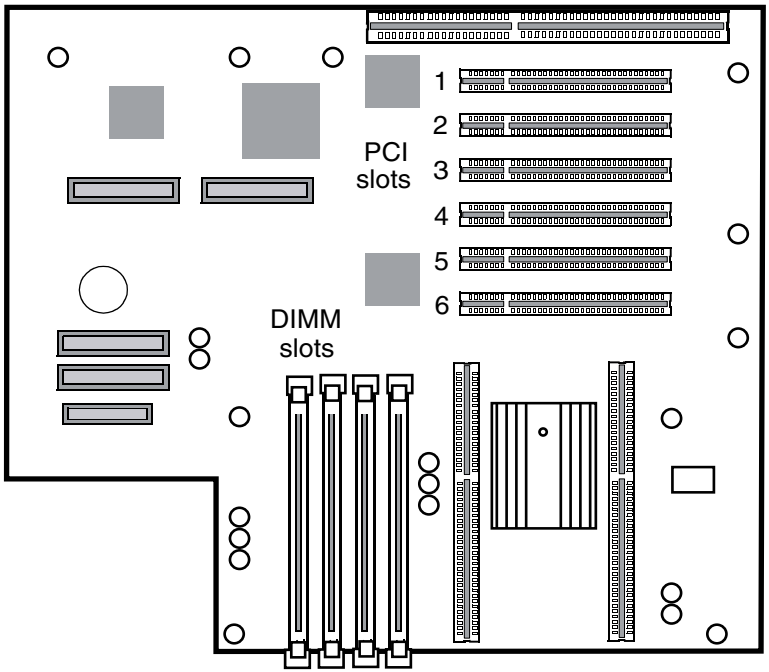
Contivity 4600 system board layout

This section shows the Contivity 4600 system board.

Warning: Only Nortel Networks trained service personnel should change existing hardware configurations. *Improper handling of internal components or assemblies, with the power connected, could cause severe injury.*

Figure 3 shows a sample Contivity 4600 system board, including the Dual Inline Memory Modules (DIMMs) and peripheral component interconnect (PCI) slots.

Figure 3 Sample Contivity 4600 system board

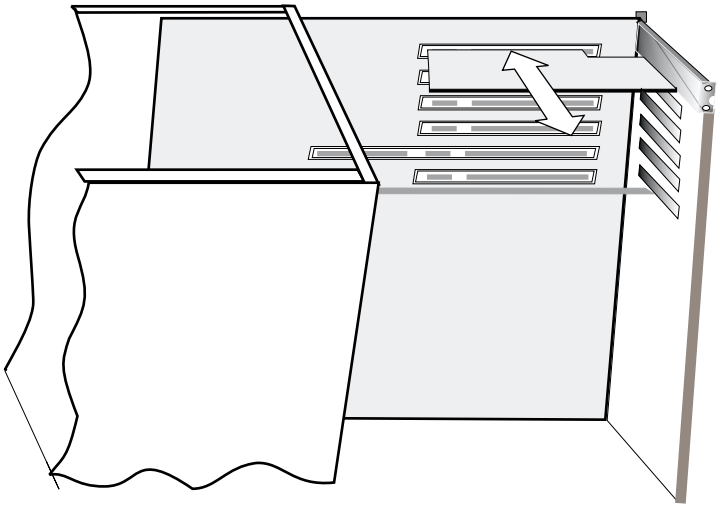


Installing Contivity 4600 LAN/WAN and hardware accelerator cards

This section describes how you install option cards in the switch option card slide-out tray. The following procedure is for Nortel Networks trained service personnel only.

1. Turn off the switch and unplug both power cords from the power source.
2. Unscrew the four slotted thumb-screws securing the slide-out tray. Pull out the tray by gripping it with the screws. It will only pull out halfway.
3. Remove the filler panel screw and pull out the slot filler panel.
4. Slide the option card into the intended slot. Make sure the card seats firmly and evenly in the card slot. If the card is not seated properly, it will not work. Populate the slots from Slot 1 to Slot 6 (top to bottom), in that order, as shown in Figure 4.

Figure 4 Installing Contivity 4600 LAN/WAN and hardware accelerator cards



CS460014A

5. Secure the option card in the tray with the slot filler panel screw.
6. Push in the tray by gripping it with the screws. Tighten the four slotted thumb-screws securing the slide-out tray.

7 Plug in both power cords to the power source and turn on the switch.

Caution: Be careful when inserting option cards into the Contivity 4600, because the slide-out tray is not fully supported once pulled out. You should support the back of the tray with your hand while inserting an option card.

Installing Contivity 4600 DIMMs

Figure 6 shows you how to unlock a DIMM in the Contivity 4600, and remove or install a DIMM. Install a DIMM in the next available slot (for example, if the DIMM #1 slot is populated, then add the next DIMM to the DIMM #2 slot).

To install a DIMM in the Contivity 4600, follow these steps:

1 Turn off the switch and unplug both power cords from the power source.

2 Unscrew the four slotted thumb-screws securing the slide-out tray. Pull out the tray by gripping it with the screws. It will only pull out halfway.

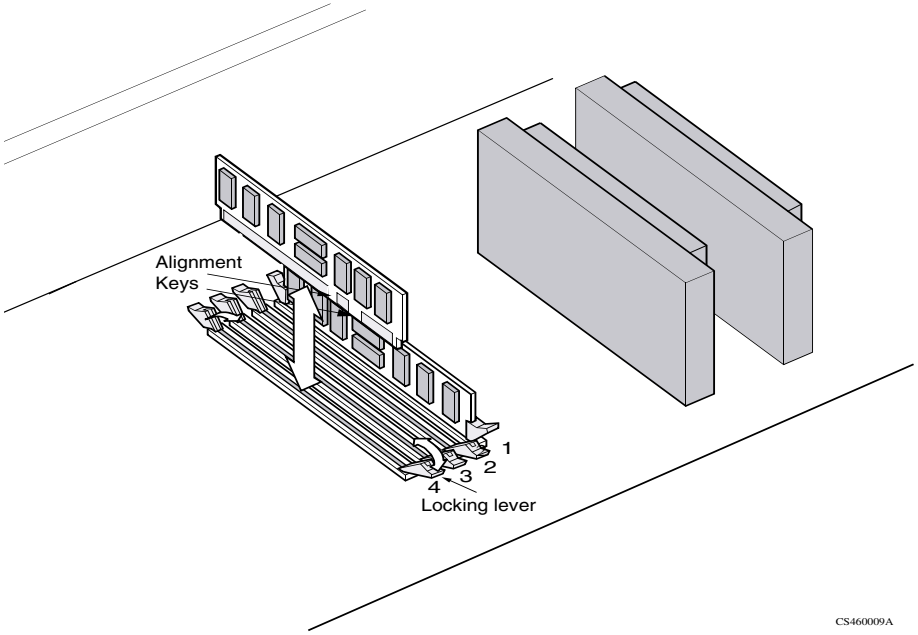
3 Unscrew the slide-out tray at the back of the unit and pull it out using the thumb screws.

4 Remove the support bracket by loosening the two secured captive screws and the rear Phillips screw.

5 Press down the locking levers on both sides of the next available DIMM slot.

6 Place a new DIMM in the slot, making sure to properly position the DIMM's alignment keys, as shown in Figure 5.

Figure 5 Installing Contivity 4600 DIMMs



7 Pull up the locking levers on both sides of the next available DIMM, and snap the DIMM into its socket.

8 Replace the support bracket by tightening the two secured captive screws and the rear Phillips screw.

9 Push in the slide-out tray and tighten the thumb-screws.

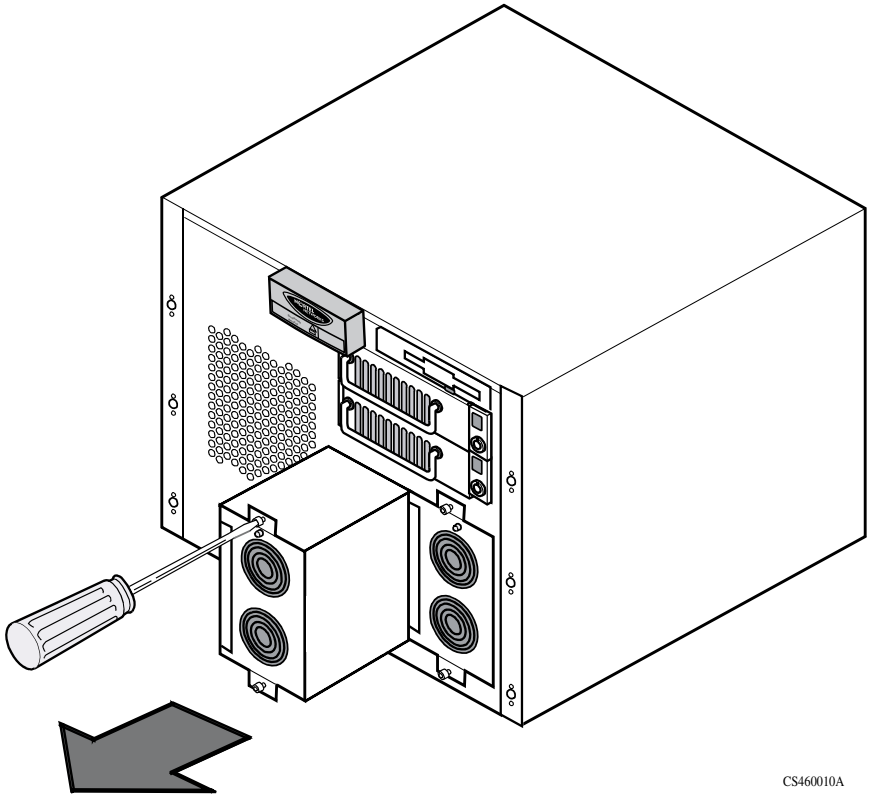
Replacing a Contivity 4600 power supply

To remove the power supply:

1 Remove the front bezel as shown in Figure 1.

2 Use a flat-head screwdriver to unscrew the top and bottom power supply screws, as shown in Figure 6.

Figure 6 Removing a Contivity 4600 power supply



3 Grab the handle and pull the power supply firmly, until the device disengages. Be careful of the sharp sheet-metal edges.

4 Insert the new power supply. Make sure it seats firmly in its socket and is locked in. Be sure the green power LED on the front of the power supply is on.

5 Secure the power supply screws tightly with a screwdriver.

6 Replace the front bezel.

Replacing a Contivity 4600 hard disk drive

Figure 7 shows you how to replace Contivity 4600 hard disk drives for the switch.

Caution: Hard disks are not hot-swappable.

To replace a hard disk drive, you must do the following:

Software

First save any data that has not yet been saved to the hard disk from the disk cache:

1. Use your Web browser to navigate to the switch, and go to the Admin→File System display.
2. Click the button "Prepare selected device for removal."

Hardware

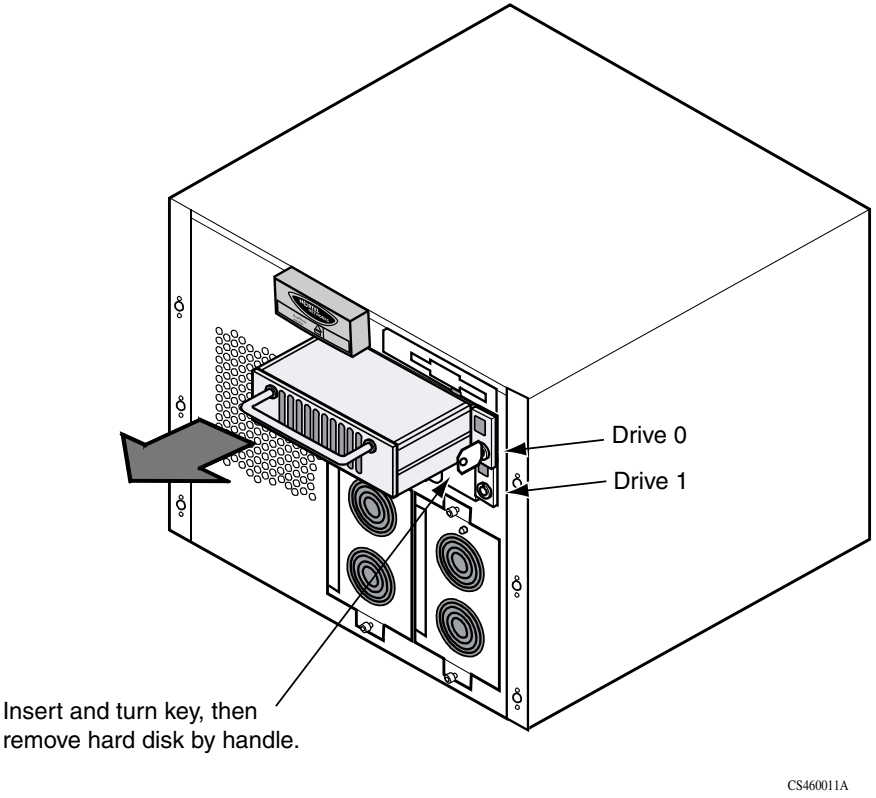
Next, remove the switch's front bezel as shown in Figure 1, and then follow these steps:

1. Insert and turn the hard disk drive key to the right. The LED becomes a "U" for unlocked.

Note: Turning the key shuts off the power to the hard disk drive.

2. Pull the handle to remove the hard disk drive, as shown in Figure 7.

Figure 7 Removing a Contivity 4600 hard disk drive



3 Insert the replacement hard drive fully, and lock it by turning the key clockwise. Make sure the hard disk drive LED shows the proper drive number.

4 Replace the front bezel.

If you need to reload the software on the disk, see the information on using the recovery diskette in the *Installing the Contivity 4600* book.

Software

Enable the switch by following these steps:

1. Use your Web browser to navigate to the switch, and go to the Admin→File System display.
2. Click on the drive and click the Enable button.

Chapter 2
Contivity 4500 Option Installation

This section describes how to install or replace hardware components for the Contivity 4500.

Warning: Wear an antistatic band when handling electronic components for the Contivity switch to avoid damaging them.

Note: Turn off the Contivity switch and unplug it before installing LAN or WAN cards, or system memory.

Opening the Contivity 4500

To replace power supplies, replace hard disk drives, or access the Contivity 4500's diskette drive for system recovery operations, you must remove the switch's front bezel. To install LAN or WAN cards, or install additional memory, you must remove the front bezel and then remove the switch's top cover as well.

Removing the Contivity 4500 front bezel

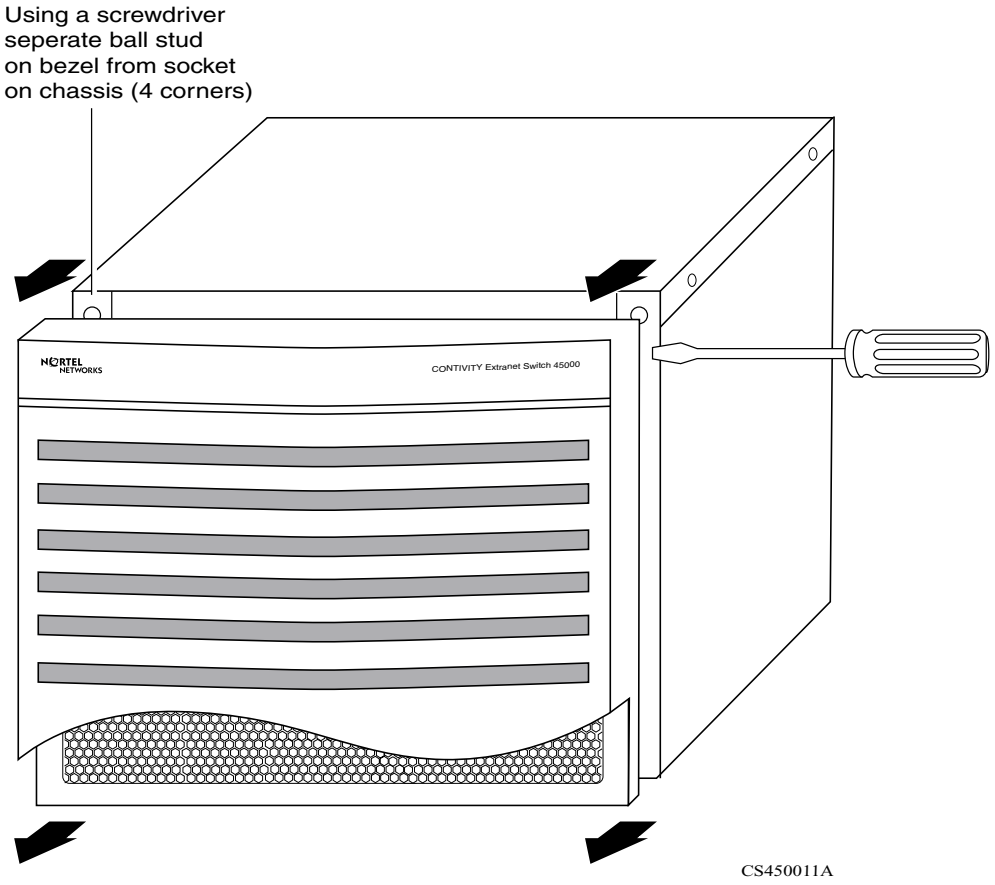
Note: Removing the front bezel on the Contivity 4500 system activates the chassis intrusion alarm only if the switch is turned on. This intrusion is reported to the system log file.

The first few times you remove the front bezel it will be somewhat difficult to remove. This is because the ball stud and sockets are new. After a few times, removal is easier. Remove the switch's front bezel as follows:

1. Insert a flat-head screwdriver into the slots on the lower left and right sides of the chassis, and pry the bezel forward.
2. Slide your fingers between the front bezel and the switch.
3. Pull the bezel forward firmly, separating the ball studs on the bezel from the sockets on the chassis.

   Figure 8 shows you how to remove the front bezel from the switch. You do not need to turn off the switch to remove the front bezel.

Figure 8 Removing the Contivity 4500 front bezel

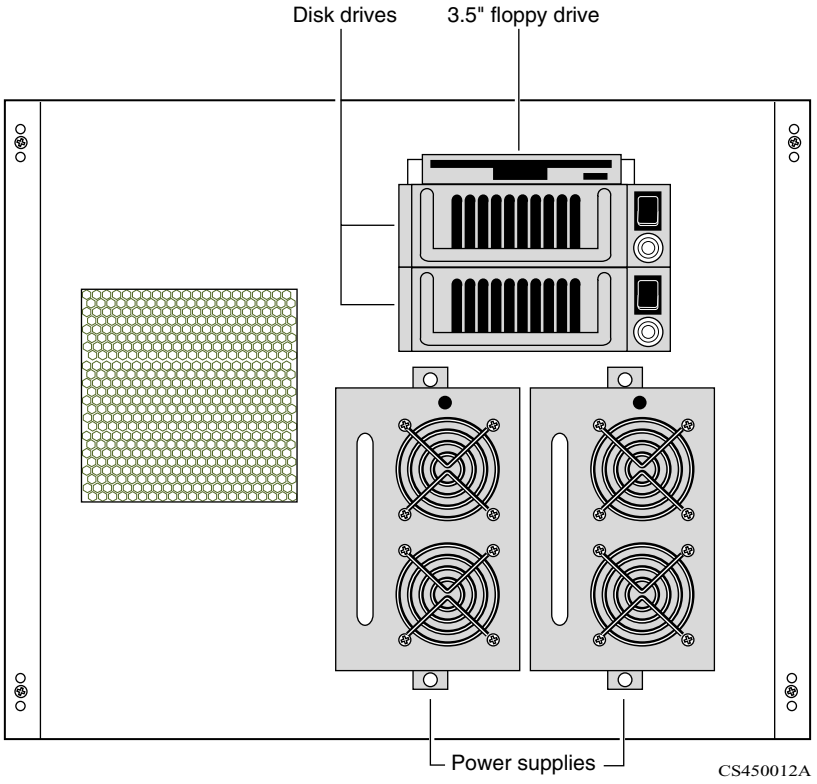


Remove the Contivity 4500 front bezel to:

- Replace a power supply.
- Replace a hard disk drive.
- Insert the recovery diskette.

Figure 9 shows the Contivity 4500 front components.

Figure 9 Contivity 4500 front components



Contivity 4500 system board layout

This section describes installing option cards onto the system board.

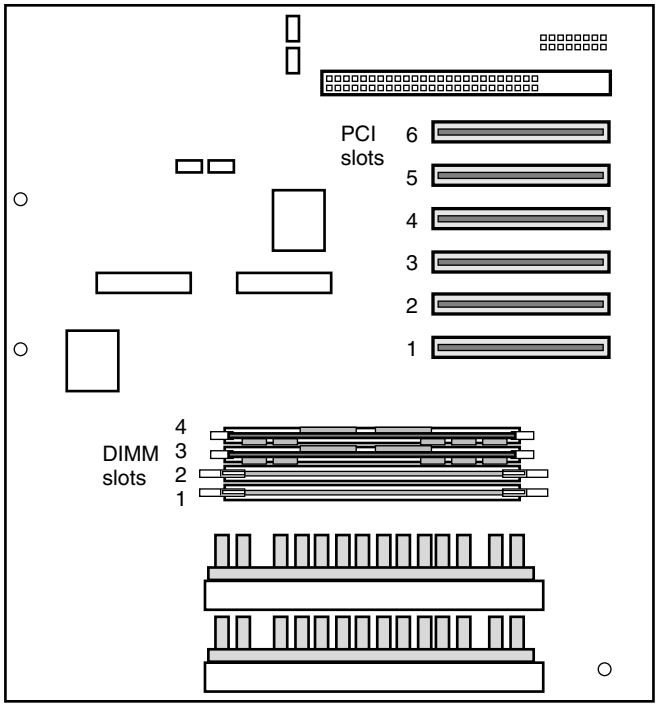
Warning: Only Nortel Networks trained service personnel should change existing hardware configurations. *Improper handling of internal components or assemblies, with the power connected, could cause severe injury.*

Note: Wear an antistatic band when handling electronic components for the switch to avoid damaging them.

Warning: Turn off the switch and unplug both power cords before installing LAN and WAN cards or system memory.

Figure 10 shows the Contivity 4500 system board, in particular the DIMMs and option card slots.

Figure 10 Sample Contivity 4500 system board



Installing Contivity 4500 LAN/WAN and hardware accelerator option cards

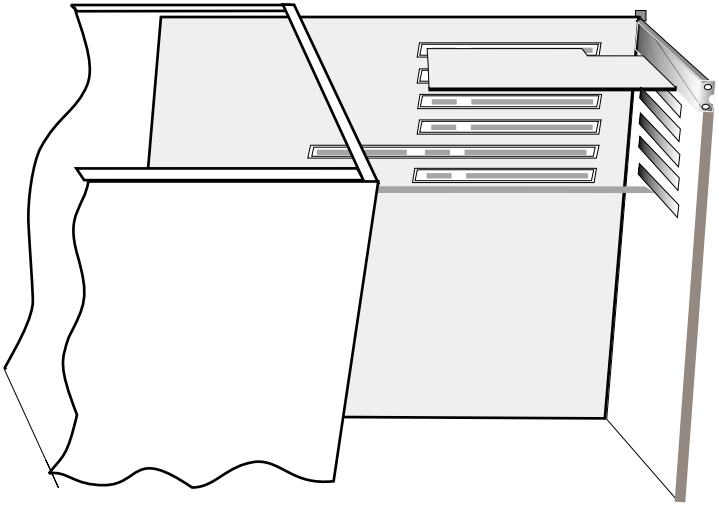
This section describes how you install option cards into the Contivity 4500 option card slide-out tray. The following procedure is for Nortel Networks trained service personnel only.

1. Turn off the switch and unplug both power cords from the power source.
2. Unscrew the four slotted thumb screws securing the slide-out tray. Pull out the tray by gripping it with the screws. It will only pull out half way.
3. Remove the filler panel screw and pull out the slot filler panel.
4. Slide the option card into the intended slot. Make sure the card seats firmly and evenly into the card slot. If the card is not seated properly, it will not work. Populate the slots from Slot 1 to Slot 6, in that order.
5. Secure the option card in the tray with the slot filler panel screw.
6. Push in the tray by gripping it with the screws. Tighten the four slotted thumb screws securing the slide-out tray.
7. Plug in both power cords to the power source and turn on the switch.

Caution: Be careful when inserting option cards into the Contivity 4500, because the slide-out tray is not fully supported once pulled out. You should support the back of the tray with your hand while inserting an option card.

Figure 11 shows you how to install LAN, WAN, or hardware accelerator option cards into the Contivity 4500. You can use the 6 slots for any mix of LAN and WAN or hardware accelerator cards; however, **you must populate the slots from bottom to top, in that order.**

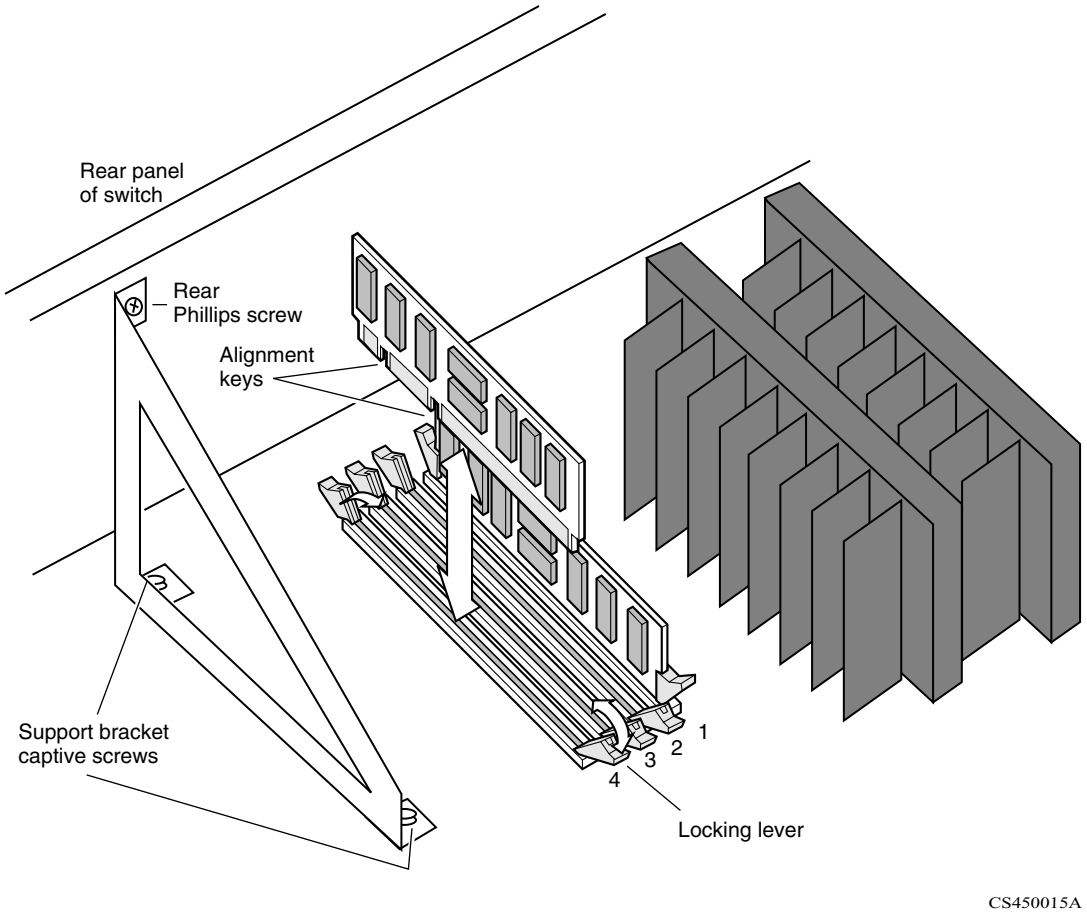
Figure 11 Installing 4500 LAN/WAN and hardware accelerator option cards



Installing Contivity 4500 DIMMs

Figure 12 shows you how to unlock a Dual Inline Memory Module (DIMM) in the Contivity 4500, and remove or install a DIMM. Install a DIMM in the next available slot (for example, if the DIMM #1 slot is populated, then add the next DIMM to the DIMM #2 slot).

Figure 12 Installing Contivity 4500 DIMMs



To install a DIMM into the Contivity 4500, follow these steps:

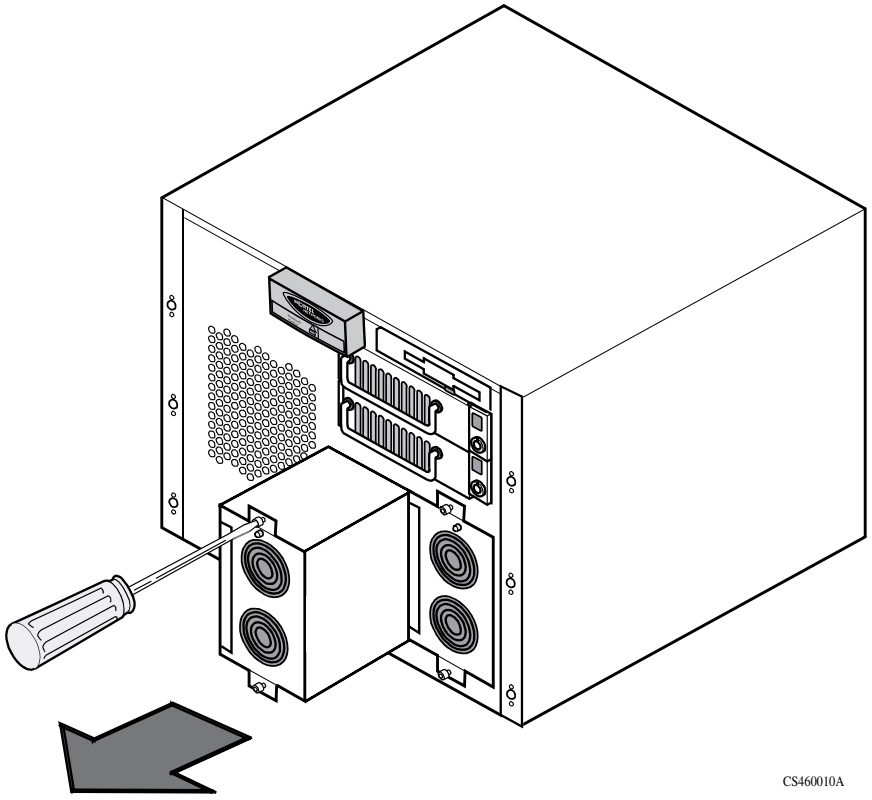
1. Turn off the switch.
2. Remove the power cords.
3. Unscrew the slide-out tray at the back of the unit and pull it out using the thumb screws.
4. Remove the support bracket by loosening the two secured captive screws and the rear Phillips screw.
5. Press down the locking levers on both sides of the next available DIMM slot to allow the new DIMM to be inserted.
6. Place the new DIMM in the slot, making sure to properly position the DIMM's alignment keys. Make sure the DIMM is pressed firmly into the socket.
7. Pull up the locking levers on both sides of the DIMM, and snap the DIMM into the socket.
8. Replace the support bracket by tightening the two secured captive screws and the rear Phillips screw.
9. Push in the slide-out tray and tighten the thumb screws.

Caution: Be careful when inserting option cards into the Contivity 4500, because the slide-out tray is not fully supported once pulled out. You should support the back of the tray with your hand while inserting an option card.

Replacing a Contivity 4500 power supply

Figure 13 shows you how to replace a hot-swappable power supply for the Contivity 4500.

Figure 13 Removing a Contivity 4500 power supply



To remove the power supply:

1. Remove the front bezel as shown in Figure 8.
2. Use a flat-head screwdriver to unscrew the top and bottom power supply screws.
3. Grab the handle and pull the power supply firmly, until the device disengages. Avoid the sharp sheet-metal edges.

4 Insert the new power supply. Make sure the power supply seats firmly in its socket and is locked in. Be sure the green power LED on the front of the power supply is on.

5 Secure the power supply screws tightly with a screwdriver.

6 Replace the front bezel.

Replacing a Contivity 4500 hard disk drive

Warning: Contivity 4500 hard disks are not hot-swappable.

When swapping a disk drive, you must first perform the steps listed below to ready the switch for the swap. This process is referred to as "warm-swapping" a disk drive.

Software

First save any data that has not yet been saved to the hard disk from the disk cache:

1 Launch a Web browser to the switch, and go to the Admin→File System display.

2 Click the button "Prepare selected device for removal."

Hardware

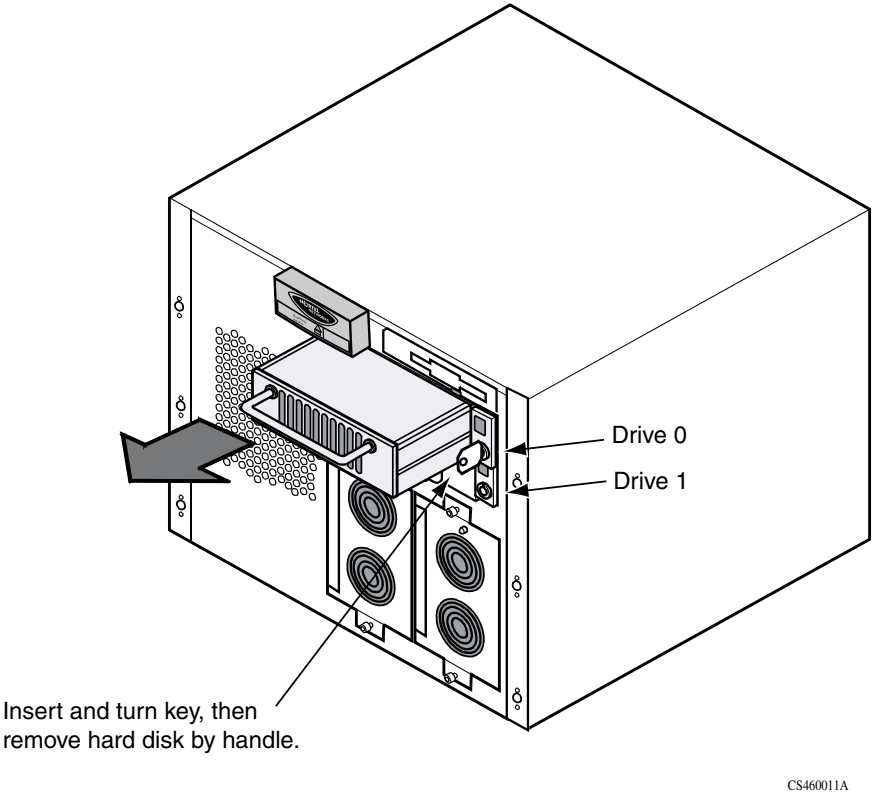
Remove the switch's front bezel as shown in Figure 8, and then follow these steps:

1 Insert and turn the hard disk drive key to the right. The LED becomes a "U" for unlocked.

NOTE: Turning the key shuts off the power to the hard disk drive.

2 Pull the handle to remove the hard disk drive as shown in Figure 14.

Figure 14 Removing a Contivity 4500 hard disk drive



3 Insert the replacement hard drive fully, and lock it by turning the key clockwise. Make sure the hard disk drive LED shows the proper drive number.

4 Replace the front bezel.

5 Reload the software on the disk. Refer to "Using the Recovery Diskette" in *Installing the Contivity 4600* for more information on using the recovery diskette.

Software

Enable the switch by following these steps:

1 Use your Web browser to navigate to the switch, and go to the Admin→File System display.

2 Click on the drive and click the Enable button.

Chapter 3
Contivity 2500/2000/4000 Option Installation

This section describes how to install or replace hardware components for the Contivity 2500, 2000, and 4000.

Warning: Wear an antistatic band when handling electronic components for the Contivity switch to avoid damaging them.

Note: Turn off the Contivity switch and unplug it before installing LAN or WAN cards, or system memory.

Opening the Contivity 2500/2000/4000

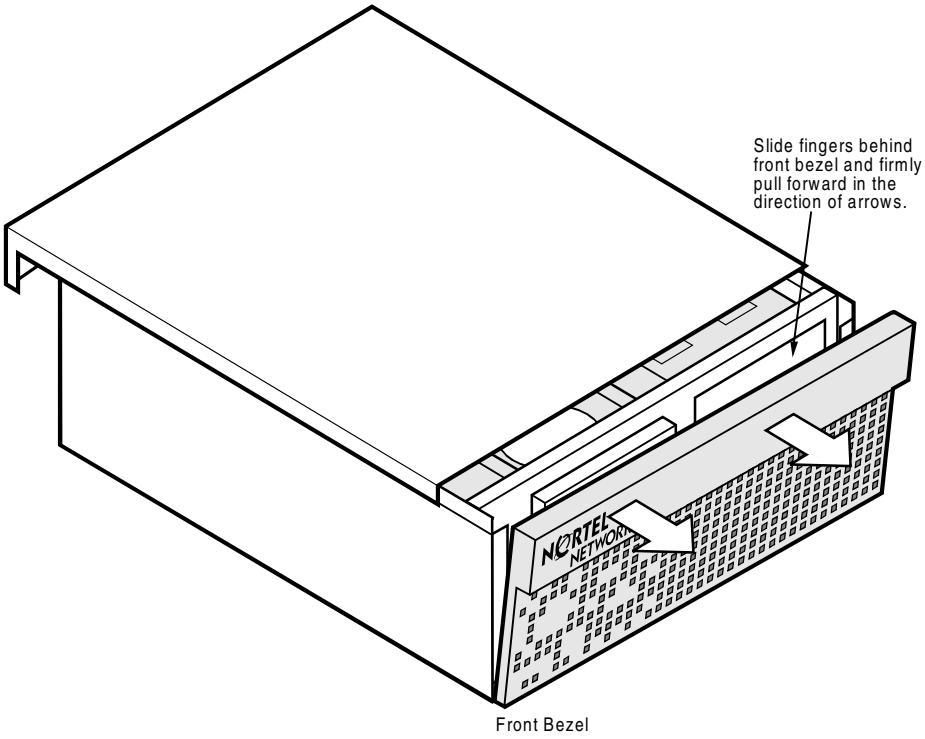
To install LAN or WAN cards, install hardware accelerator PCI cards, install additional memory, replace power supplies, or replace hard disk drives, you must remove the front bezel and then remove the switch's top cover. You may find it easier to work on the system when it has been removed from the rack.

Removing the Contivity 2500/2000/4000 front bezel

To access the Contivity 2500/2000/4000 disk drive for system recovery operations, you must first remove the switch's front bezel. Figure 15 shows you how to remove the front bezel and top cover from the Contivity 2500/2000/4000.

Note: You do not need to turn off the switch to remove the front bezel.

Figure 15 Removing the Contivity 2500/2000/4000 front bezel



The first few times you remove the front bezel it will be rather difficult to remove. This is because the ball stud and sockets are new. After a few times, removal is easier. Sliding the top cover back is optional; it allows you to get a better grip on the front bezel for removal.

Remove the switch's front bezel as follows:

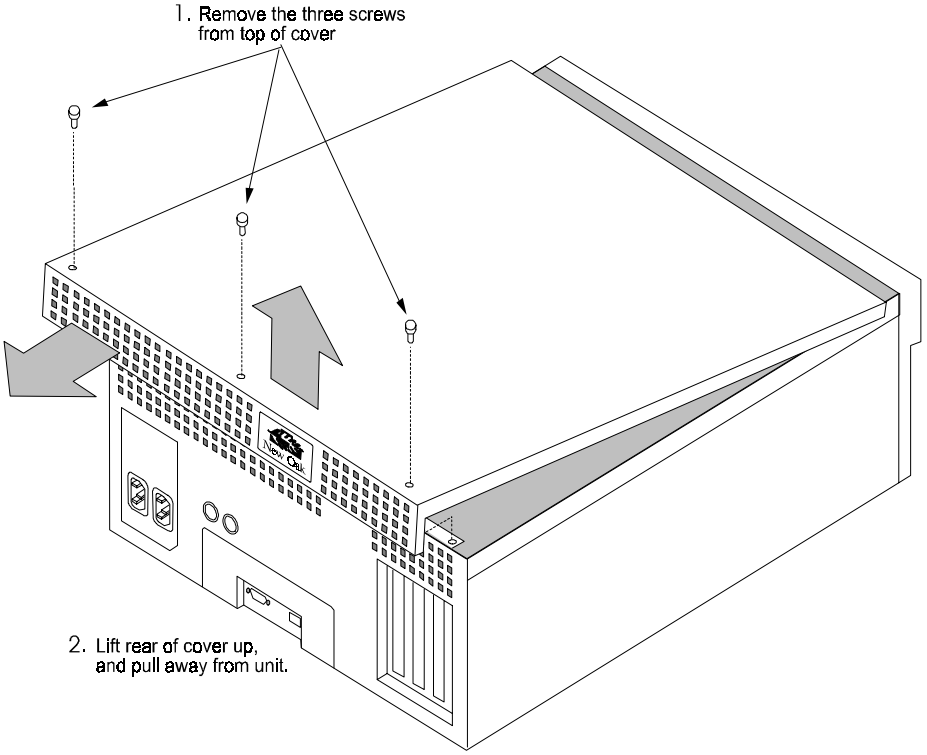
1. Optionally, remove the three screws at the top rear of the chassis, then slide the top cover back.
2. Slide your fingers between the front bezel and the switch.
3. Pull forward firmly.

Removing the Contivity 2500/2000/4000 top cover

Figure 16 shows you how to remove the top cover from the Contivity 2500/2000/4000. You must remove the cover to:

- Install LAN, WAN, or hardware accelerator cards
- Install additional memory

Figure 16 Removing the Contivity 2500/2000/4000 top cover



To remove the Contivity 2500/2000/4000 top cover:

1. Turn off the switch's power and unplug it.
2. Remove the three screws at the top rear of the chassis.
3. Slide the top cover back and move it away from the chassis.

Contivity 2500/2000/4000 system board layout

Figure 17 shows the Contivity 2500/200 system board, in particular the DIMMs, option card slots, and the CPU cooling fan. The Contivity 4000 system board is similar, but has **two** CPUs as shown in Figure 18.

Figure 17 Sample Contivity 2500/2000 system board

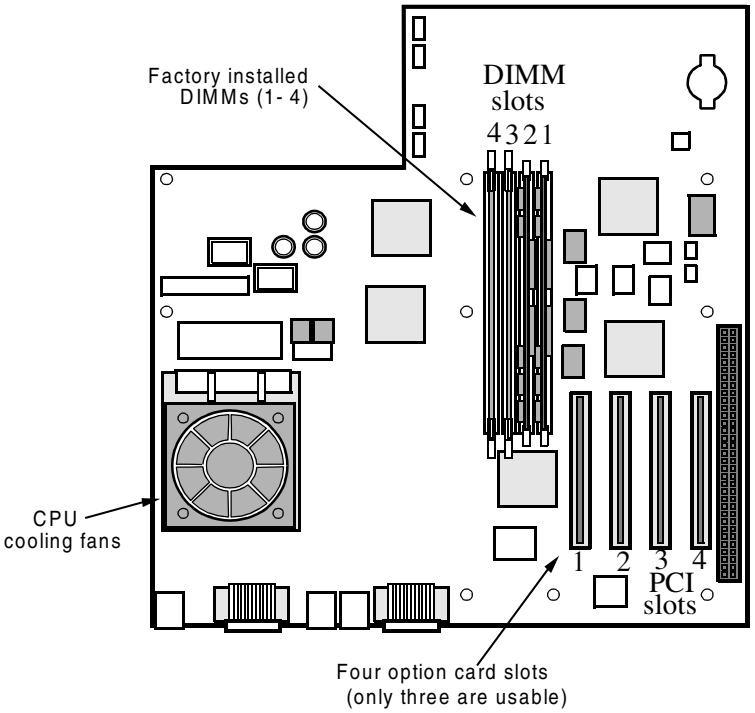
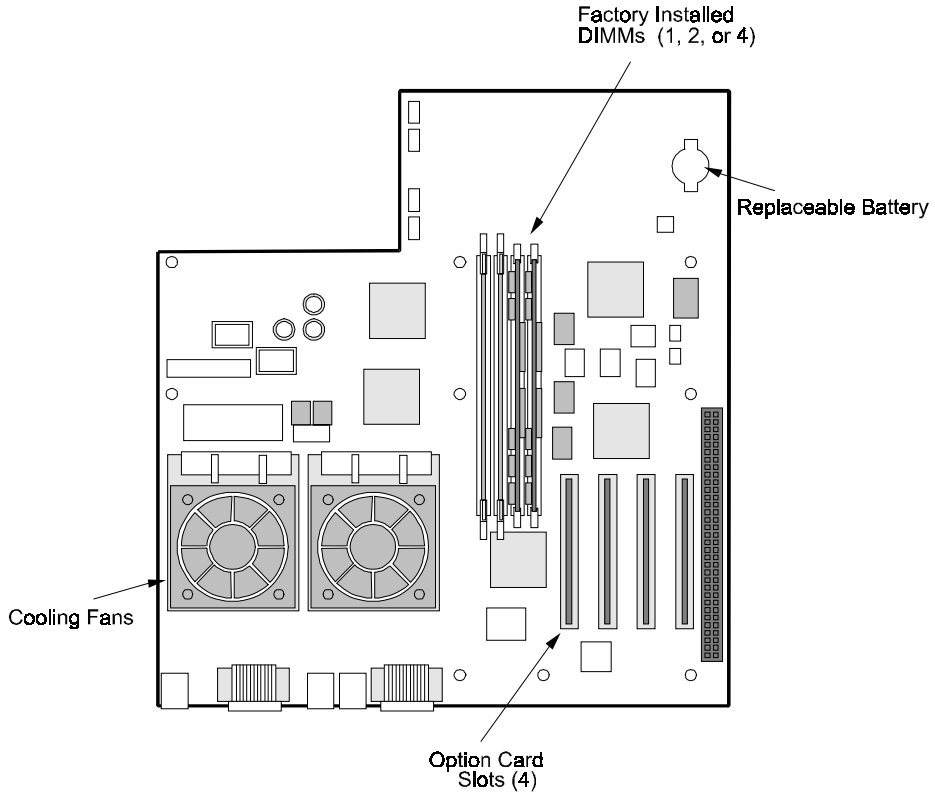


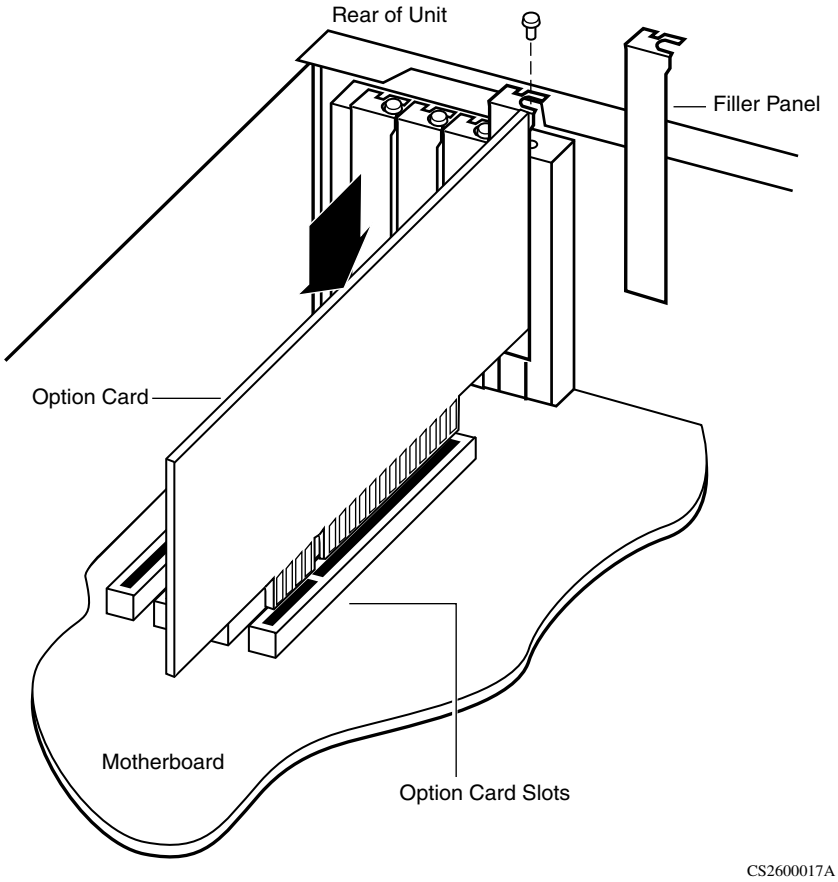
Figure 18 Sample Contivity 4000 system board



Installing Contivity 2500/2000/4000 LAN/WAN option cards

Figure 19 shows you how to install LAN or WAN option cards into a Contivity 2500/2000/4000. You can use Slots 1 to 3 for any mix of LAN and WAN cards. Note that Slot 4 is not supported.

Figure 19 Installing 2500/2000/4000 LAN/WAN option cards



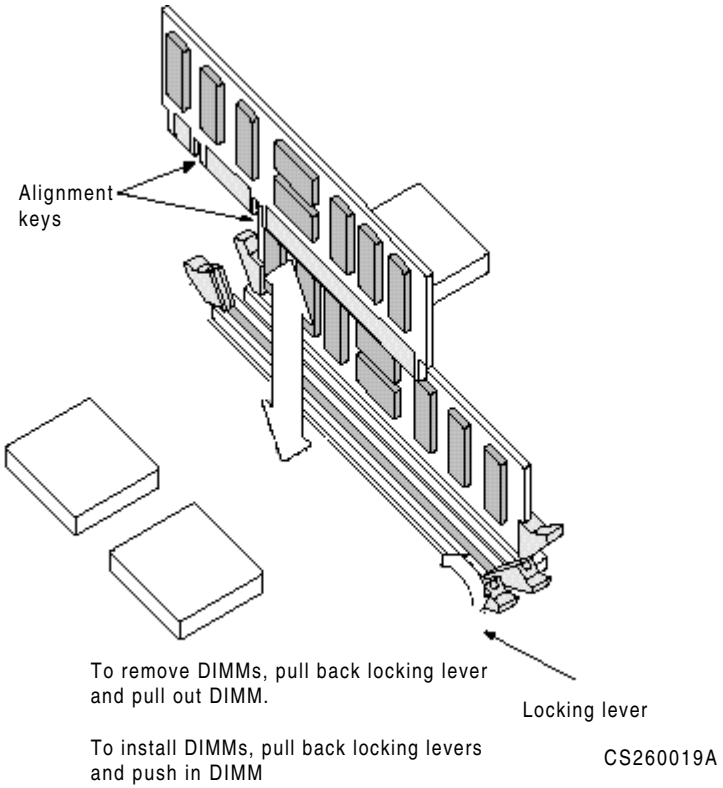
To install an option card:

1. Turn off the switch and remove the power cord.
2. Remove the front bezel and top cover as shown in Figure 16.
3. Remove the filler panel screw and pull out the filler panel as shown in Figure 19.
4. Slide the option card into the intended slot. Make sure the card seats firmly and evenly in the card slot. If the card is not seated properly, it will not work.
5. Replace the card and screw.
6. Replace the and top cover and front bezel.
7. Turn the switch on.

Installing Contivity 2500/2000/4000 DIMMs

Figure 20 shows you how to unlock a Dual Inline Memory Module (DIMM) in a Contivity 2500/2000/4000, and remove or install a DIMM. Install a DIMM in the next available slot (for example, if the DIMM #1 slot is populated, add the next DIMM to the DIMM #2 slot).

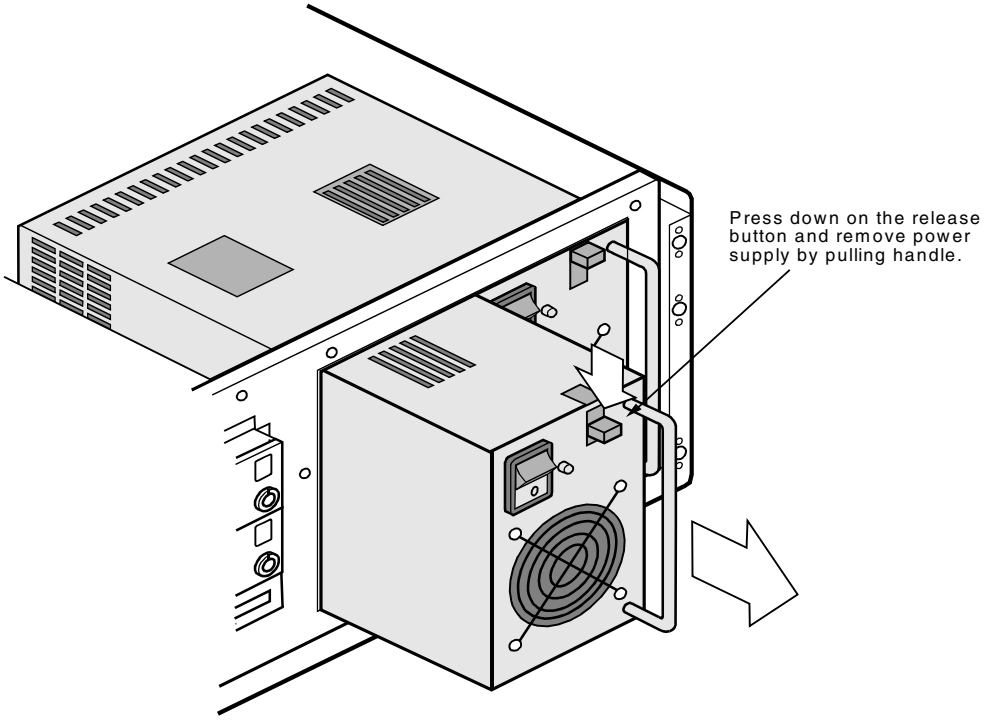
Figure 20 Installing Contivity 2500/2000/4000 DIMMs



Replacing a Contivity 4000 power supply

Figure 21 shows you how to replace a power supply for a Contivity 4000.

Figure 21 Removing a Contivity 4000 power supply



To remove a Contivity 4000 power supply, remove the switch's front bezel, then follow these steps:

1. Press the button down to turn off the power supply.
2. Press down on the release button.
3. Pull the handle forward.
4. Insert the new power supply. Make sure that the release button is pressed down while inserting the power supply.
5. Make sure the power supply is locked in.
6. Turn on the power supply and replace the front bezel.

Replacing a Contivity 4000 disk drive

To replace a Contivity 4000 disk drive, you must do the following:

Software

First save any data that has not yet been saved to the hard disk from the disk cache:

1. Use your Web browser to navigate to the switch, and go to the Admin→File System display.
2. Click the button "Prepare selected device for removal."

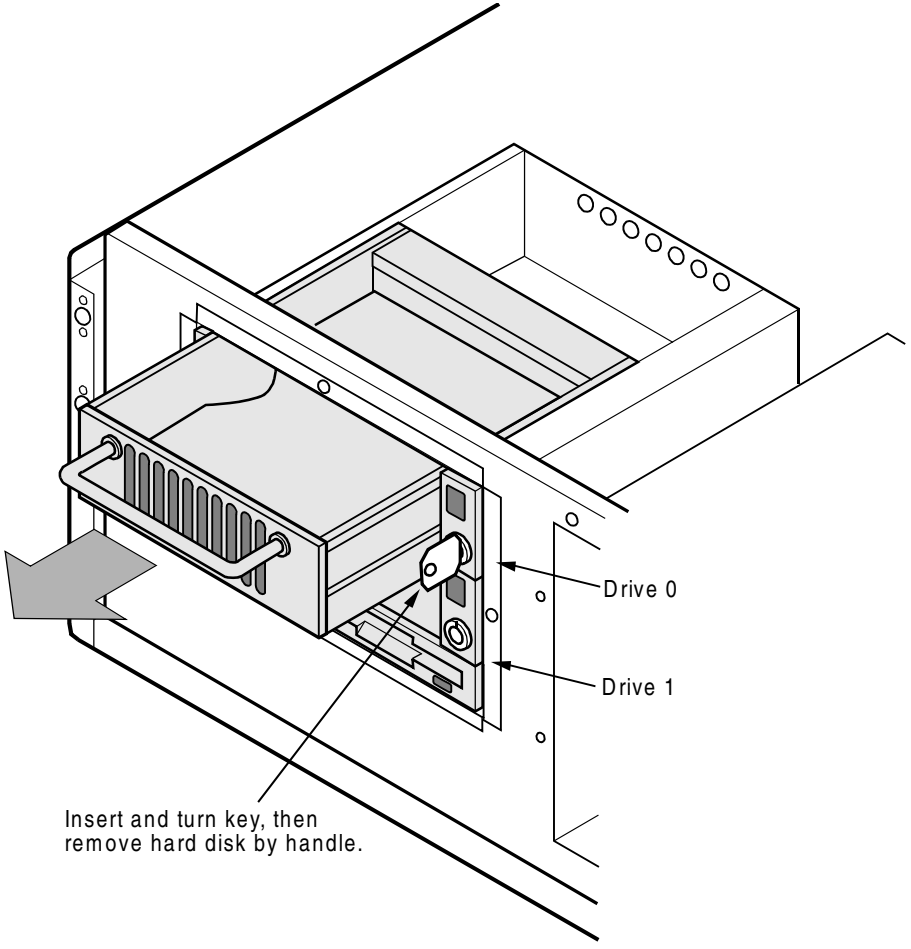
Hardware

Remove the switch's front bezel as shown in Figure 15; then follow these steps:

1. To remove a Contivity 4000 hard disk drive, insert and turn the hard disk drive key to the right as shown in Figure 22. The LED becomes a "U" for unlocked.

NOTE: Turning the key shuts off the power to the hard disk drive.

Figure 22 Removing a Contivity 4000 hard disk drive



2 Pull the handle to remove the hard disk drive.

3 Insert the replacement hard drive fully, and lock it by turning the key clockwise. Make sure the hard disk drive LED shows the proper drive number.

4 Replace the front bezel.

5 Reload the software on the disk. Refer to "Using the Recovery Diskette" in *Installing the Contivity 4600* for more information on using the recovery diskette.

Software

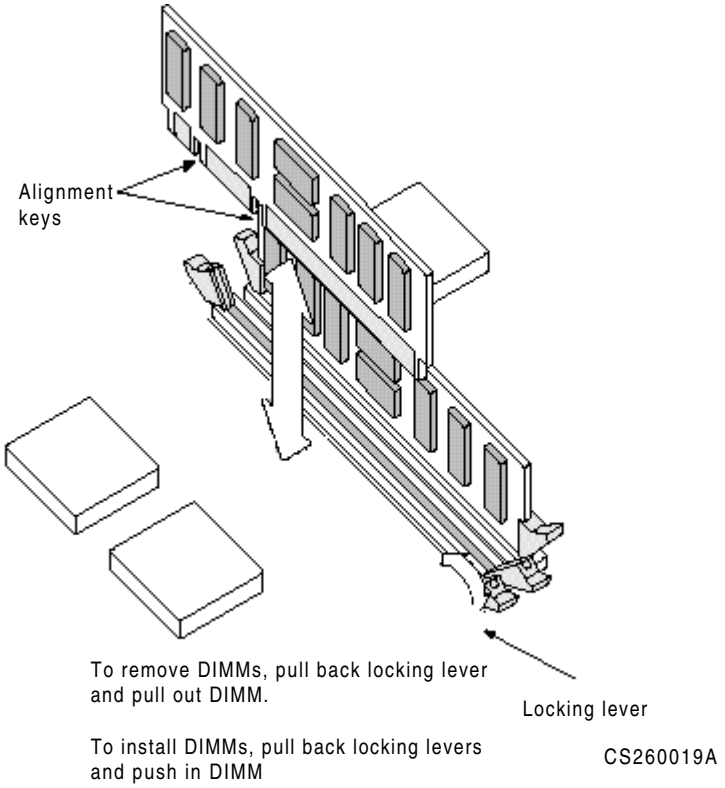
Enable the switch by following these steps:

1. Use your Web browser to navigate to the switch, and go to the Admin→File System display.
2. Click on the drive and click the Enable button.

Installing Contivity 2500/2000/4000 DIMMs

Figure 23 shows you how to unlock a Dual Inline Memory Module (DIMM) and remove or install the DIMM in the next available slot (for example, if the DIMM #1 slot is populated, add the next DIMM to the DIMM #2 slot).

Figure 23 Installing Contivity 2500/2000/4000 DIMMs



To replace or change a DIMM, follow these steps.

1. Turn off the switch.
2. Remove the power cord.
3. Remove the front bezel as shown in Figure 15.
4. Remove the top cover as shown in Figure 16.
5. Press down the locking levers on both sides of the next available slot to allow the new DIMM to be inserted.
6. Pull the DIMM up to remove it from the slot.
7. Place a new DIMM in the slot, making sure to properly position the DIMM's alignment keys. Make sure the DIMM is pressed firmly into the socket.
8. Pull up the locking levers on both sides of the DIMM, and snap the DIMM into the slot.
9. Replace the top cover.
10. Replace the front bezel.

Memory option

The Contivity 2500/2000/4000 ships with 128 Mbits of memory installed. An additional 128 Mbits can be installed. To increase the memory, contact Nortel Networks Customer Support.

Chapter 4
Contivity 2600 Option Installation

This section describes how to install or replace hardware components for the Contivity 2600.

Warning: Wear an antistatic band when handling electronic components for the Contivity switch to avoid damaging them.

Note: Turn off the Contivity switch and unplug it before installing LAN or WAN cards, or system memory.

Opening the Contivity 2600

To access the Contivity 2600 disk drive for system recovery operations, you must first remove the switch's front bezel. To install LAN or WAN cards, install hardware accelerator PCI cards, install additional memory, replace power supplies, or replace hard disk drives, you must remove the front bezel and then remove the switch's top cover. You may find it easier to work on the system when it has been removed from the rack.

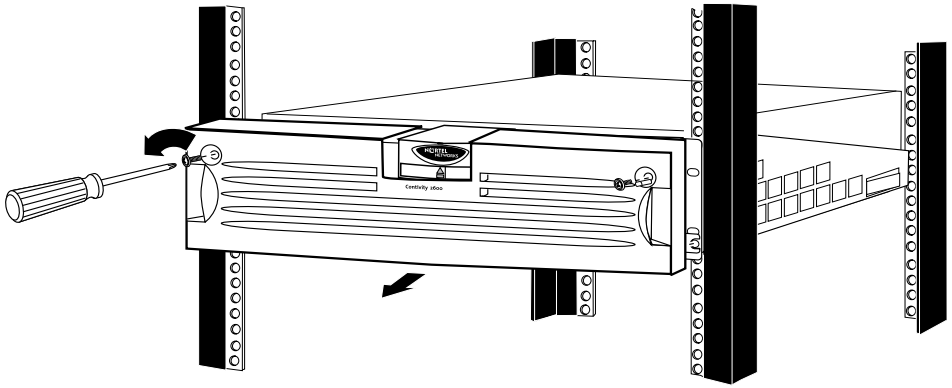
Removing the Contivity 2600 front bezel

Note: Removing the front bezel on the Contivity 2600 system activates the chassis intrusion alarm whether or not the switch is turned on. This intrusion is reported to the system log file.

You must remove the bezel to insert the recovery diskette. Note that you **do not** need to turn off the switch if you are **only** removing the front bezel. Figure 24 shows you how to remove the front bezel from the switch.

Caution: When handling the switch outside of the rack-mount shelf, do not use the part labeled with the Nortel Networks logo and the LEDs as a handle.

Figure 24 Removing the Contivity 2600 front bezel



The first few times you remove the front bezel it will be rather difficult to remove. This is because the ball studs and socket clips are new. After a few times, removal is easier.

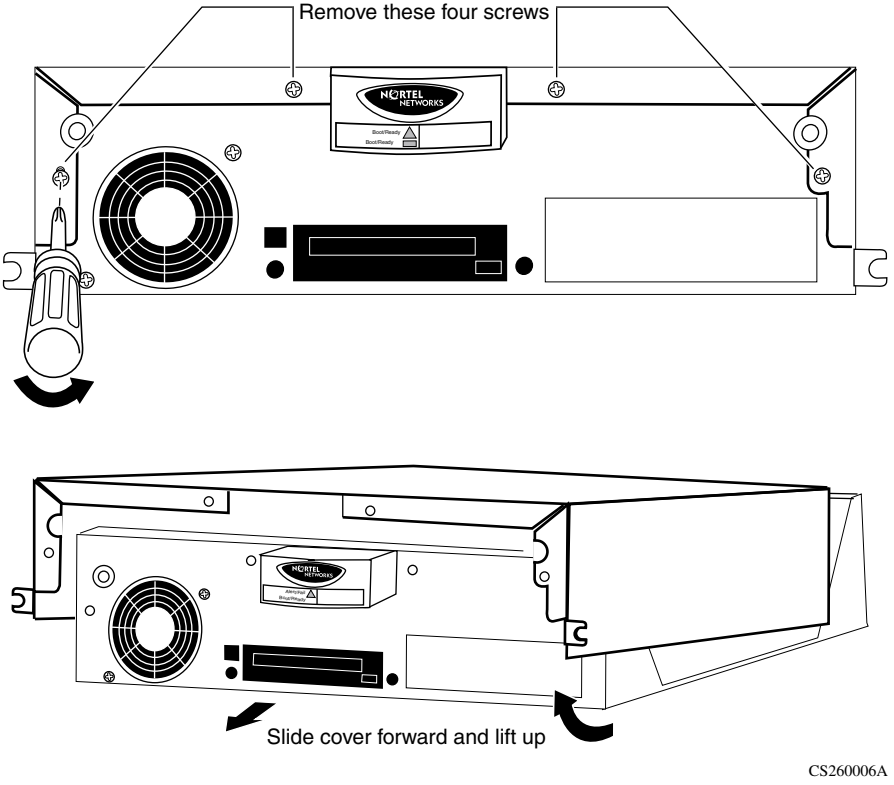
To remove the front bezel, you need a Phillips screwdriver.

1. Turn each of the two screws on the front bezel a quarter turn counter-clockwise.
2. Grip the two handles and pull the bezel towards you firmly to unsnap it from the chassis.

Removing the Contivity 2600 top cover

To remove the cover to install LAN, WAN, or hardware accelerator cards or to install additional memory, you must remove the switch's front bezel and then you must remove the switch's top cover. Figure 25 shows you how to remove the top cover from the switch.

Figure 25 Removing the Contivity 2600 top cover

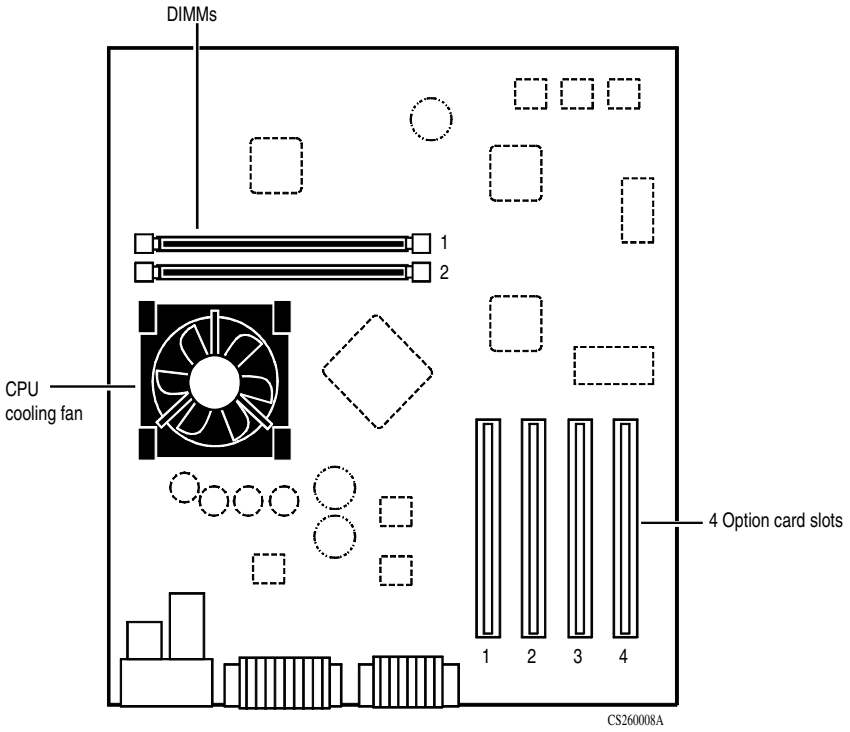


➨ Slide the top cover forward approximately 1/4 inch, then lift the lid 2 to 3 inches and move it away from the chassis.

Contivity 2600 system board layout

Figure 26 shows the Contivity 2600's system board, in particular the DIMMs, option card slots, and the CPU cooling fan.

Figure 26 The Contivity 2600 system board



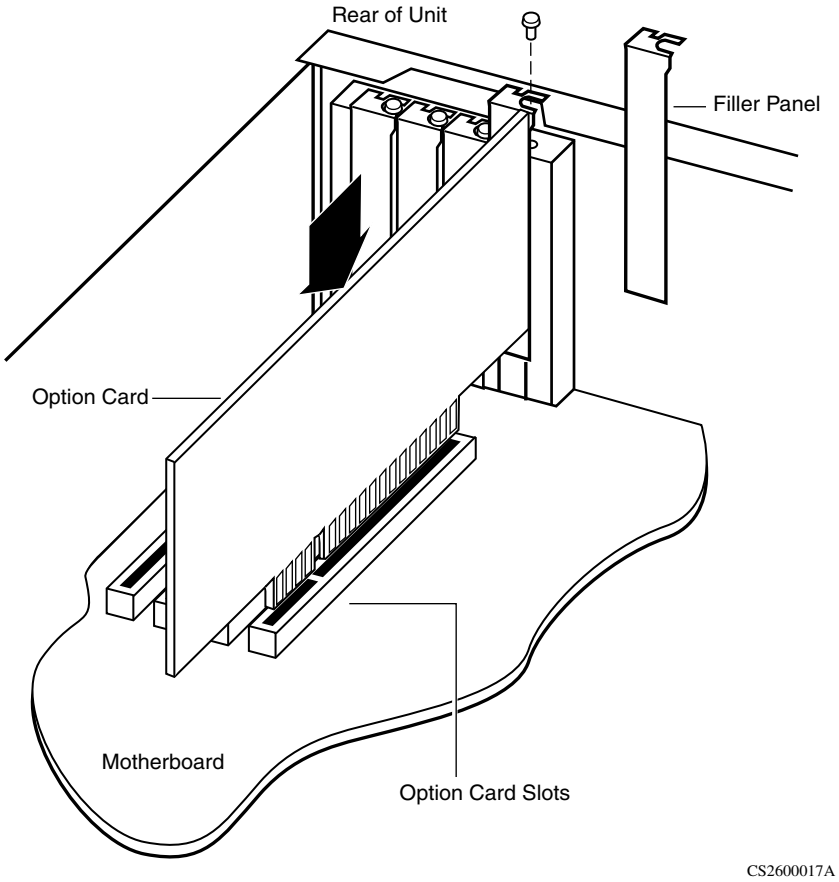
Warning: Beware of danger if battery is incorrectly replaced. Replace with the *same* or an *equivalent battery* only, as recommended by the manufacturer's instructions.

Danger: In spite of the above warning, which is mandated for regulatory approval, *you should not change the battery.* If you suspect a dead battery, contact Nortel Networks Customer Support.

Installing LAN/WAN and hardware accelerator option cards

Figure 27 shows you how to install LAN, WAN, or hardware accelerator option cards into the switch. You can use Slots 1 to 4 for any mix of LAN and WAN cards.

Figure 27 Installing LAN/WAN or hardware accelerator cards



To remove the front bezel and cover, you need a Phillips screwdriver.

1 Power off the switch.

2 Remove the power cord.

3 Remove the front bezel as shown in Figure 24.

4 Remove the top cover as shown in Figure 25.

5 Remove the filler panel screw and pull out the filler panel as shown in Figure 27.

Caution: Be careful when inserting option cards into the Contivity 2600, as the slide-out tray is not fully supported once pulled out. You should support the back of the tray with your hand while inserting an option card.

6 Slide the option card into the intended slot. Make sure the card seats firmly and evenly into the card slot. If the card is not seated properly, it will not work.

7 Replace the card and screw.

8 Replace the top cover.

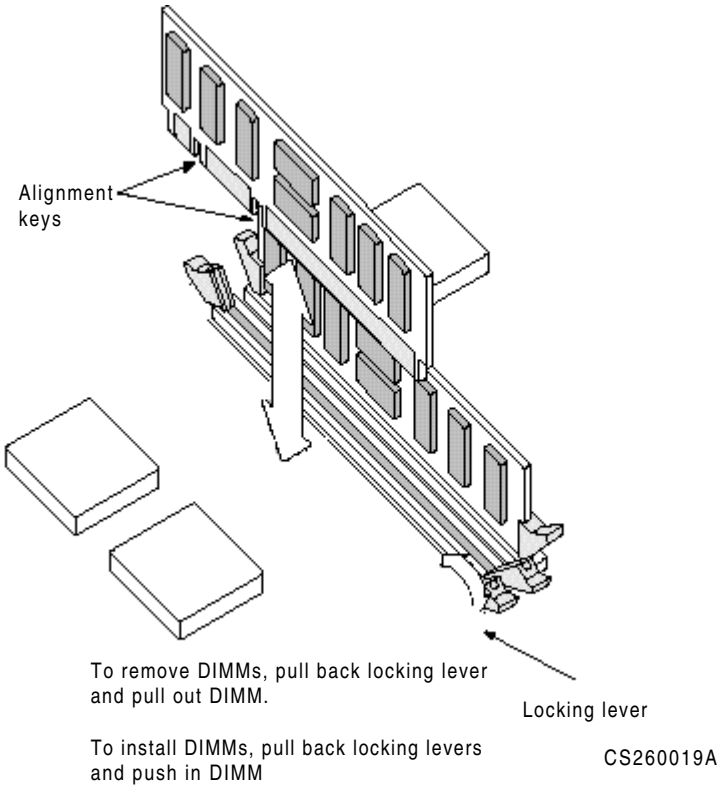
9 Replace the front bezel.

Caution: Be careful when inserting option cards into the Contivity 2600, as the slide-out tray is not fully supported once pulled out. You should support the back of the tray with your hand while inserting an option card.

Installing Contivity 2600 DIMMs

Figure 28 shows you how to unlock a Dual Inline Memory Module (DIMM) and remove or install the DIMM in the next available slot (for example, if the DIMM #1 slot is populated, add the next DIMM to the DIMM #2 slot).

Figure 28 Installing Contivity 2600 DIMMs



To replace or change a DIMM, follow these steps.

1. Turn off the switch.
2. Remove the power cord.
3. Remove the front bezel as shown in Figure 24.
4. Remove the top cover as shown in Figure 25.
5. Press down the locking levers on both sides of the next available slot to allow the new DIMM to be inserted.
6. Pull the DIMM up to remove it from the slot.
7. Place a new DIMM in the slot, making sure to properly position the DIMM's alignment keys. Make sure the DIMM is pressed firmly into the socket.
8. Pull up the locking levers on both sides of the DIMM, and snap the DIMM into the slot.
9. Replace the top cover.
10. Replace the front bezel.

Memory option

The Contivity 2600 ships with 128 Mbits of memory installed. An additional 128 Mbits can be installed. To increase the memory, contact Nortel Networks Customer Support.

Chapter 5
Contivity 1600 Option Installation

This chapter describes how Nortel Networks trained service personnel can change existing hardware configurations, including installing LAN and WAN cards and how to add memory for the Contivity 1600.

Warning: Wear an antistatic band when handling electronic components for the Contivity switch to avoid damaging them.

Note: Turn off the Contivity switch and unplug it before installing LAN or WAN cards, or system memory.

Opening the Contivity 1600

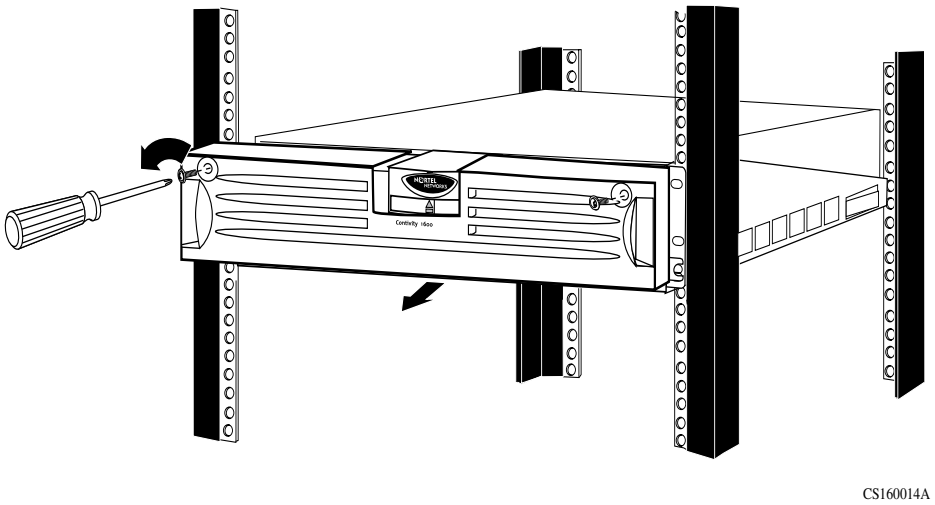
To access the Contivity 1600's diskette drive for system recovery operations, you must first remove the switch's front bezel. To install LAN or WAN cards, install hardware accelerator PCI cards, install additional memory, replace power supplies, or replace hard disk drives, you must remove the front bezel and then remove the switch's top cover. You may find it easier to work on the system when it has been removed from the rack.

Removing the Contivity 1600 front bezel

You must remove the bezel to insert the recovery diskette. Note that you **do not** need to turn off the Contivity switch if you are only removing the front bezel. Figure 29 shows you how to remove the front bezel from the Contivity switch.

Warning: When handling the Contivity switch outside of the rack-mount shelf, do not use the part labeled with the Nortel Networks logo and the LEDs as a handle.

Figure 29 Removing the Contivity 1600 front bezel



Note that the first few times you remove the front bezel it will be rather difficult to remove. This is because the ball studs and socket clips are new. After a few times, removal is easier.

To remove the front bezel you need a Phillips screwdriver.

1. Turn each of the two screws on the front bezel a quarter turn counter-clockwise.
2. Grip the two handles and firmly pull the bezel towards you to unsnap it from the chassis.

Removing the Contivity 1600 top cover

To install LAN or WAN cards, or to install additional memory, you must remove the Contivity 1600's front bezel and then the switch's top cover.

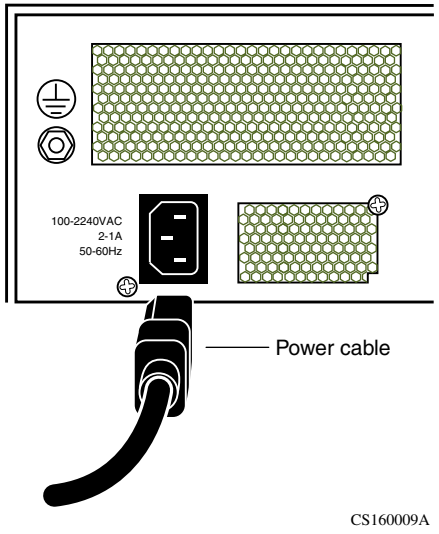
To remove the cover you need a Phillips screwdriver.

Note: You **do** need to turn off the Contivity switch to remove the top cover.

1 Turn off the switch's power and remove the power cord.

Figure 30 shows how to remove the power cord from the Contivity switch.

Figure 30 Removing the Contivity 1600 power cord

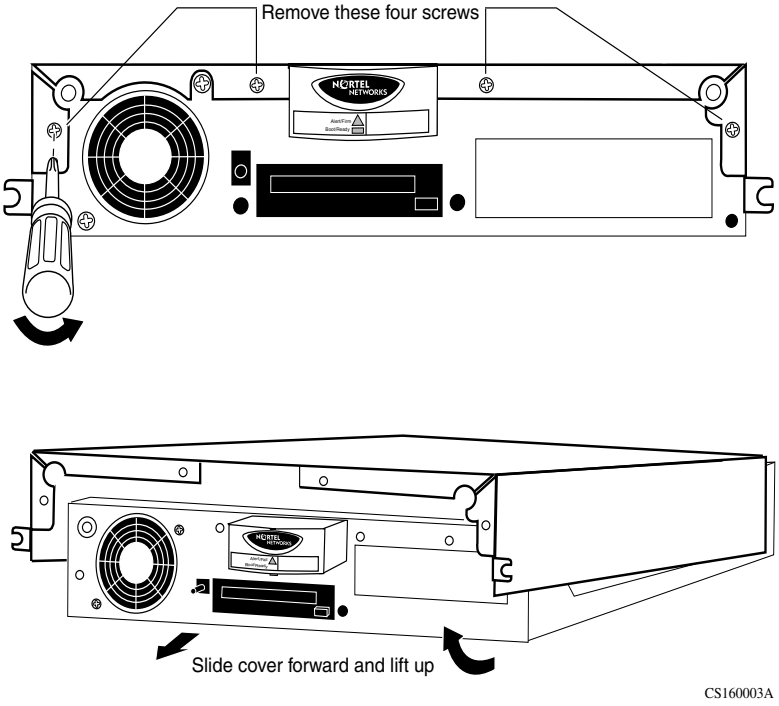


2 Turn each of the two screws on the front bezel a quarter turn counter-clockwise.

3 Grip the two handles and firmly pull the bezel towards you to unsnap it from the chassis. Do not use the part labeled with the Nortel Networks logo and the LEDs as a handle.

4 Use the Phillips screwdriver to remove the four screws that secure the cover to the chassis, as shown in Figure 31.

Figure 31 Removing the Contivity 1600 top cover

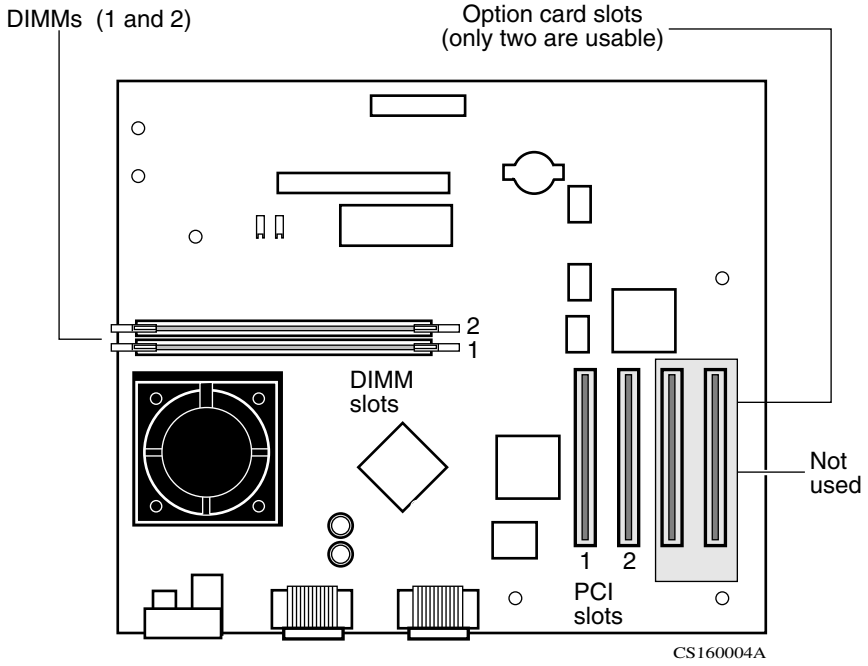


5 Slide the top cover forward approximately 1/4 inch, then lift the lid 2 to 3 inches, and move it away from the chassis.

Contivity 1600 system board layout

Figure 32 shows the Contivity 1600's system board, in particular the DIMMs, option card slots, and the CPU cooling fan.

Figure 32 Contivity 1600 system board



Warning: Beware of danger if the battery is incorrectly replaced. Replace with the *same* or an *equivalent battery* only, as recommended by the manufacturer's instructions.

Danger: In spite of the above warning, which is mandated for regulatory approval, *you should not change the battery.* If you suspect a dead battery, contact Nortel Networks Customer Support.

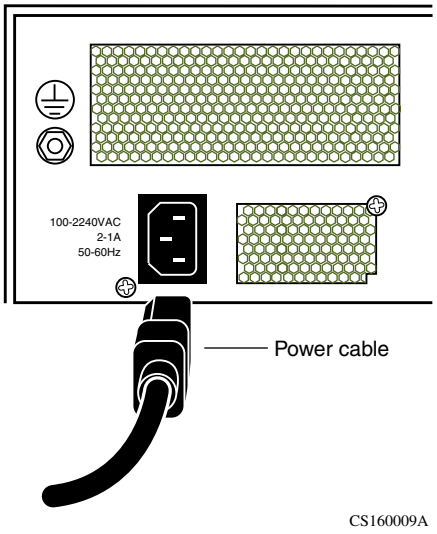
Installing Contivity 1600 option cards

This section shows you how to install LAN or WAN option cards in the Contivity 1600.

1 Turn off the switch.

2 Remove the power cord, as shown in Figure 33.

Figure 33 Removing the Contivity 1600 power cord

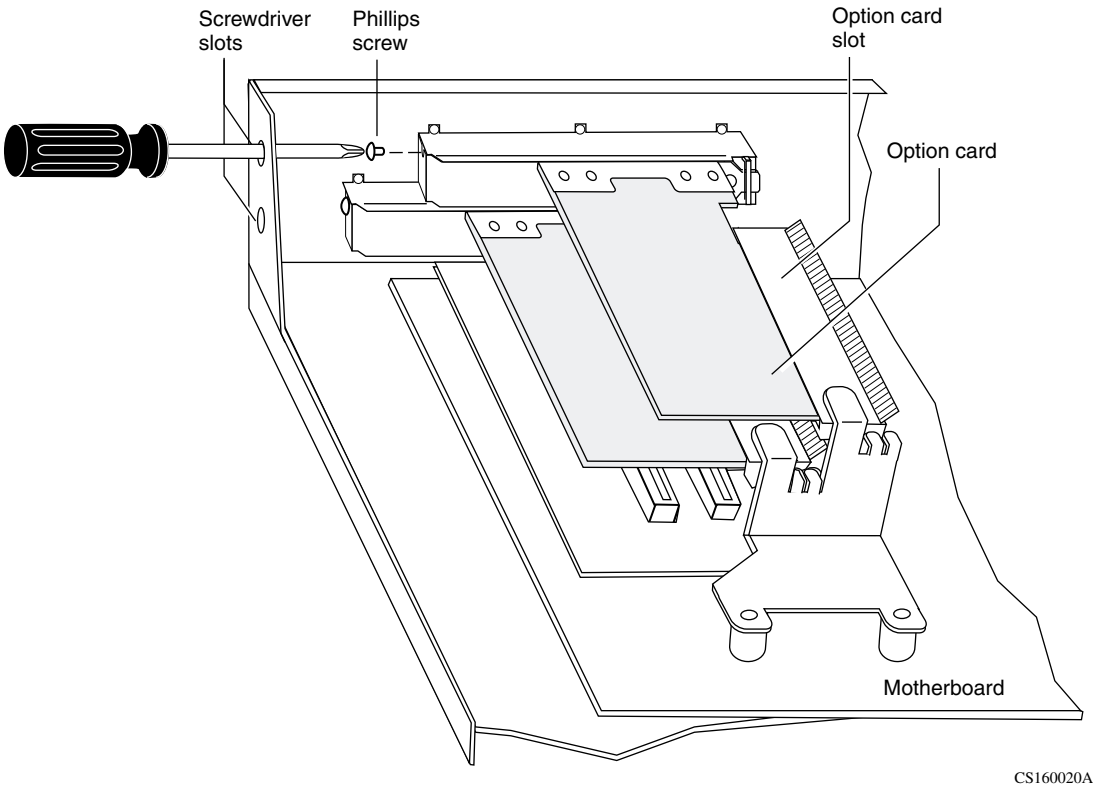


3 Remove the front bezel, as shown in Figure 29.

4 Remove the top cover, as shown in Figure 31.

5 Remove the filler panel screw and pull out the filler panel, as shown in Figure 34.

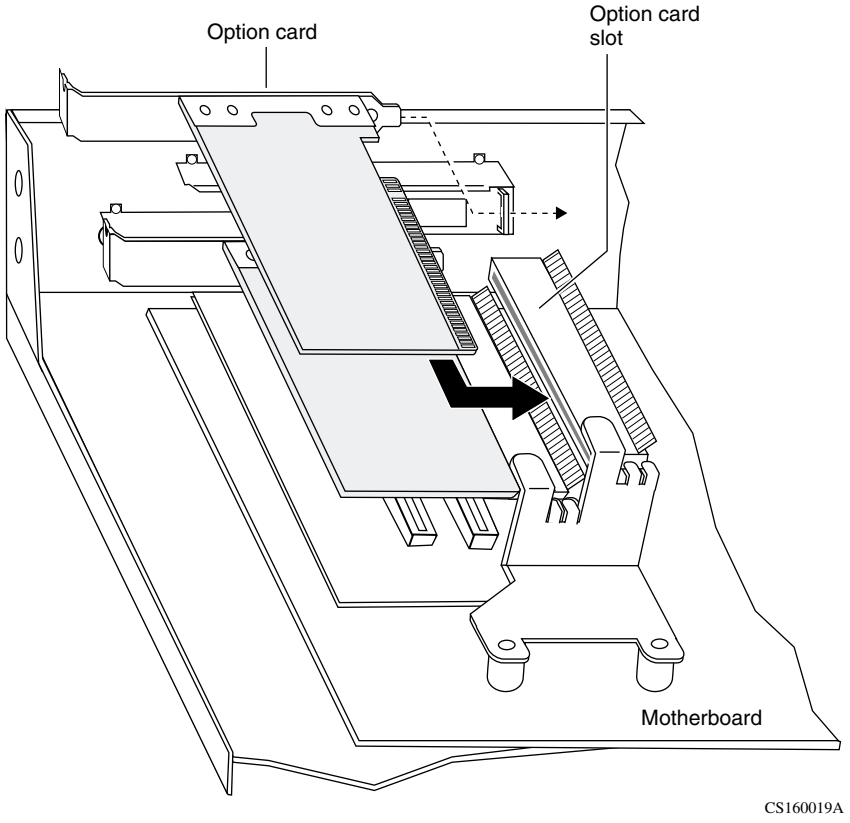
Figure 34 Installing Contivity 1600 LAN/WAN option cards



6 Slide the option card into the intended slot, as shown in Figure 35.

Make sure the card seats firmly and evenly into the card slot. If the card is not seated properly, it will not work.

Figure 35 Installing Contivity 1600 option cards



7 Replace the card and screw.

8 Replace the top cover.

9 Replace the front bezel.

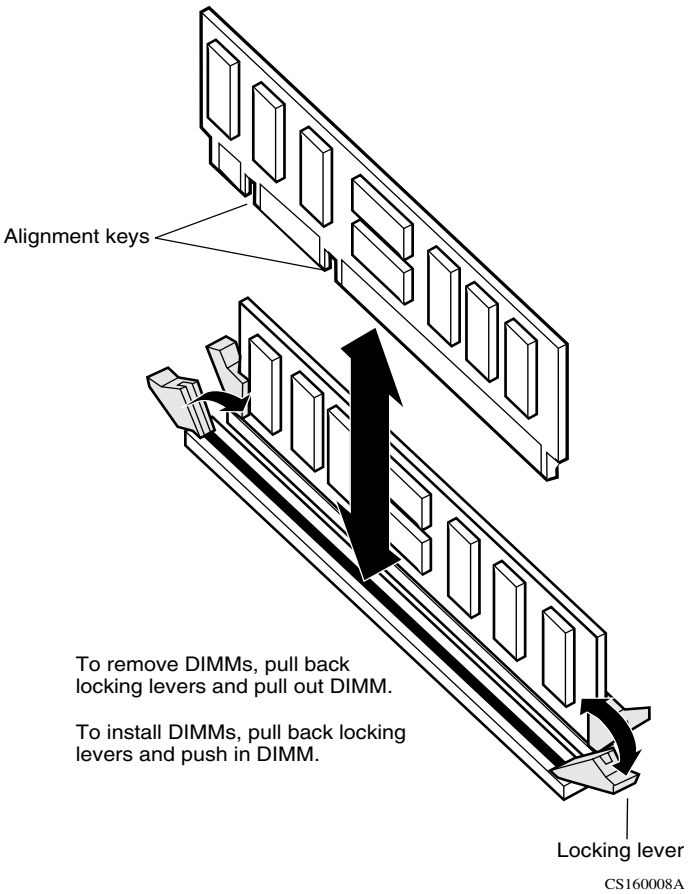
10 Reconnect the power cord.

11 Turn on the switch.

Installing Contivity 1600 DIMMs

Figure 36 shows you how to unlock a DIMM and remove or install the DIMM in the next available slot (for example, if the DIMM # 1 slot is populated, than add the next DIMM to the DIMM # 2 slot).

Figure 36 Installing Contivity 1600 DIMMs



To replace a DIMM, follow these steps.

1. Turn off the switch.
2. Remove the power cord as shown in Figure 30.
3. Remove the front bezel as shown in Figure 29.
4. Remove the top cover as shown in Figure 31.
5. Press down the locking levers on both sides of the DIMM as shown in Figure 36.
6. Pull the DIMM up to remove it from the slot.
7. Place a new DIMM in the slot, making sure to properly position the DIMM's alignment keys. Make sure the DIMM is pressed firmly into the socket.
8. Pull up the locking levers on both sides of the DIMM, and snap the DIMM into the socket.
9. Replace the top cover.
10. Replace the front bezel.
11. Reconnect the power cord.
12. Turn on the switch.

Memory option

The Contivity 1600 ships with 64 Mbits of memory installed. An additional 64 Mbits can be installed. To increase the memory, contact Nortel Networks Customer Support.

Chapter 6
Contivity 600 Option Installation

This chapter describes how Nortel Networks trained service personnel can change existing hardware configurations, including installing LAN and WAN cards for the Contivity 600.

Note: The expansion slot is renamed to Slot 2 by the Contivity 600 software.

Warning: Wear an antistatic band when handling electronic components for the Contivity 600 to avoid damaging them.

Note: Unplug the power cord from the rear of the Contivity 600 before installing LAN or WAN interface cards.

To install LAN or WAN cards you must:

1. Remove the power cable.
2. Remove all signal cables.
3. Remove the four screws on the bottom of the switch.
4. Slide the inner chassis out of the casing.
5. Unscrew the PCI interface bracket screw and remove the PCI interface card or blank PCI bracket.
6. Install a new PCI interface, being careful to completely press the card into the PCI connector on the mother board.
7. Replace the chassis (along the guide rails) in the outer casing.
8. Replace the bottom screws.

9 Reconnect the power cord to turn the switch back on.

Opening the Contivity 600

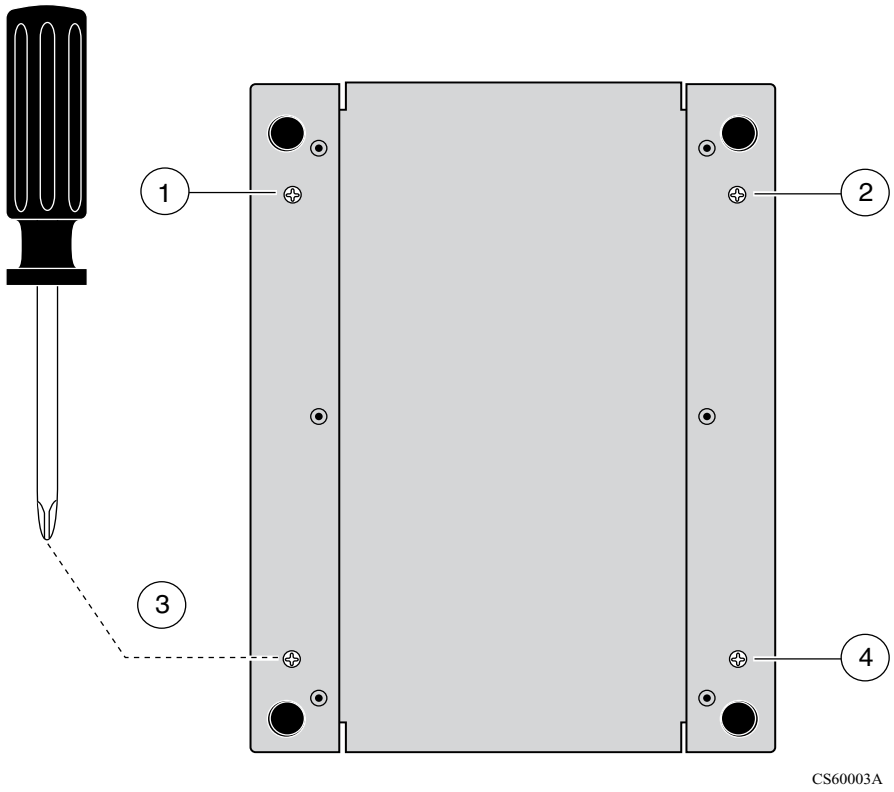
To access the system, you must remove remove all cables, the power cord, and the bottom metal screws and pull the chassis from the rear. You need a Phillips screwdriver to access the system.

1 Unplug the switch's power cord from the back of the chassis and all the signal cables.

2 Turn the switch over to see the bottom of the box.

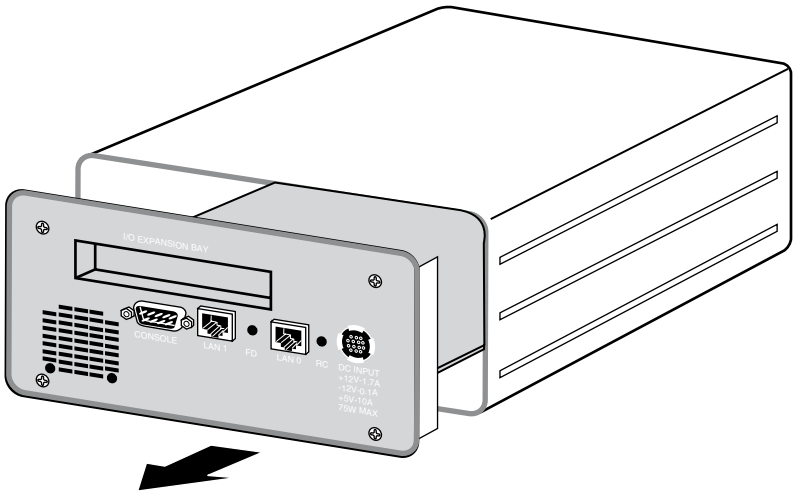
3 Using the Phillips screwdriver, remove the four screws that secure the bottom to the chassis, as shown in Figure 37.

Figure 37 Removing the bottom screws



4 Firmly pull the chassis towards you to loosen it from the casing. You can gently shake it so that it slips outwards and into your hand or you can pull gently on the I/O expansion bay. Figure 38 shows how to remove the system from the chassis.

Figure 38 Removing the system from the chassis

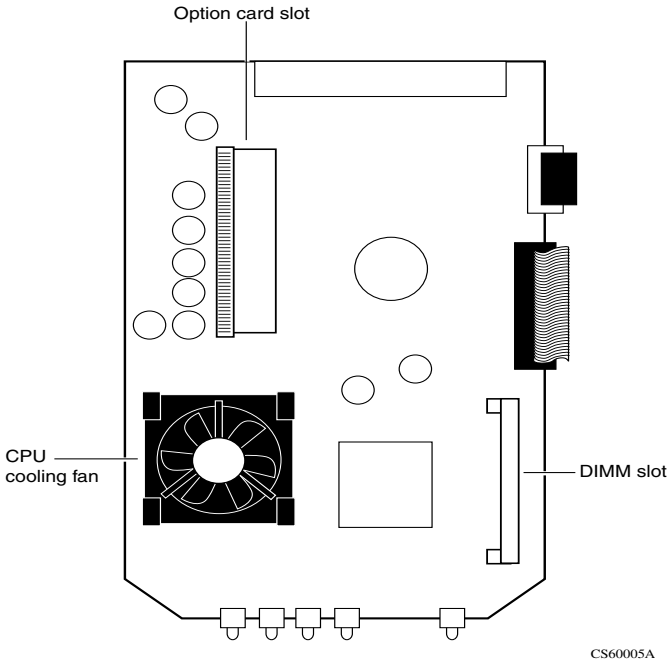


1

Contivity 600 system board layout

Figure 39 shows the Contivity 600 system board, in particular the option card slot, DIMM memory, and the CPU cooling fan.

Figure 39 Contivity 600 system board



Warning: Beware of danger if the battery is incorrectly replaced. Replace with the *same* or an *equivalent battery* only, as recommended by the manufacturer's instructions.

Danger: In spite of the above warning, which is mandated for regulatory approval, *you should not change the battery.* If you suspect a dead battery, contact Nortel Networks Customer Support.

Installing Contivity 600 option cards

This section shows you how to install LAN or WAN option cards in the Contivity 600.

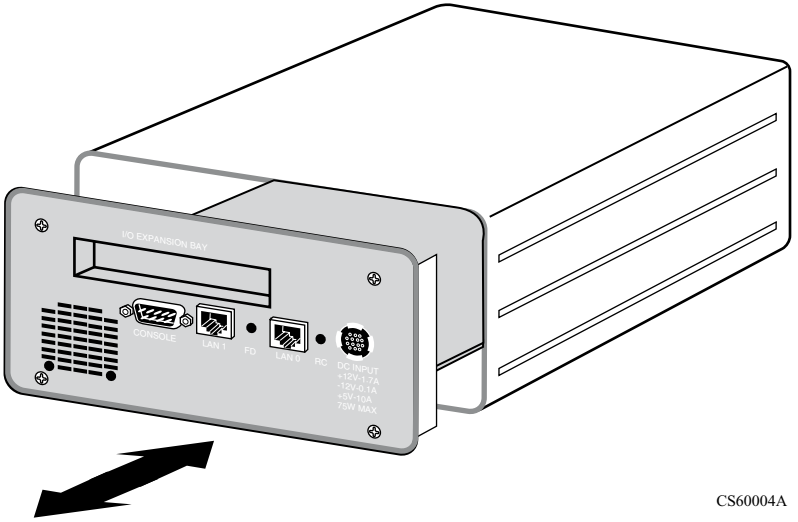
1. Remove the blank PCI bracket by inserting a Phillips screw driver into the slot at the right of the blank PCI bracket and rotating the screw counter-clockwise.
2. Lift out the blank PCI bracket, and slide the replacement card into the intended slot.

Note: Be careful not to bend the copper fingers in the slot.

Make sure the card seats firmly and evenly in the card slot and that the left tabbed-end of the card is seated in its slot. If the card is not seated properly, it will not work.

3. Replace the screw at the right end of the PCI bracket.
4. Slide the system into the chassis as shown in Figure 40.

Figure 40 Replacing the system into the chassis



5. Replace the four Phillips-head screws to secure the bottom panel.
6. Reconnect the signal cables.
7. Reconnect the power cord to restart the Contivity 600.

Memory option

The Contivity 600 ships with 64 Mbits of memory installed. No additional memory can be installed.

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